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Setback for Proposed News Print Amalgamation

With Announcement That Price Bros. & Co., Will Not Enter Into Merger, Hope Fades for Consolidation of News Print Industry, Involving All Big Producers In Eastern Canada—Relief Measures Depend On Concerted Action by Various Operators In Industry —Scrapping of Older Units Suggested to Adjust Capitalization of Companies

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., June 13, 1932—Lord Beaverbrook's emphatic pronouncement that Price Bros. & Co., Ltd., will retain its independence, and that those who are charged with reorganizing its affairs will entertain no proposition to enter into a general merger, has given a setback to the hopes for a comprehensive amalgamation in the news print industry involving all the big producers in Eastern Canada.

Any measures which might conceivably bring any real relief to the news print situation would depend upon concerted action by the various operators in the industry, and Price Bros. are not only one of the largest operators, but one of the largest holders of timber limits.

With Canadian mills operating at 60 per cent or less of capacity, and with no indications of any material improvement in demand, overhead throughout the industry, it is stated, is much too heavy in relation to the price obtained for news print, for the companies to carry separately on even with a material reduction in capital set-up.

Statement by Lord Beaverbrook

It is significant that Lord Beaverbrook, in a statement to the press following the submission of the Price Bros. reconstruction plan at the annual meeting referred to the possibility of a further reduction in news print prices this year. The mills have found existing prices too low to permit of unprofitable operations; hence a further reduction, with no apparent hope of any expansion in demand as an offsetting factor, cannot but aggravate the ruinous conditions now prevailing in the industry. For the past two years those organizations with several mills located in various parts of the country have been operating only the low cost mills and keeping the older and higher cost units closed down. This of course was good policy with an insufficient tonnage of contracts to keep all of mills in operation. The mere maintenance of these older mills, however, even with operations suspended, has added to the burden of overhead in a period when low overhead is a necessity. It is claimed, therefore, that, as there is little chance of news print demand coming anywhere near mill capacity in the country for many years, the only real solution would be to scrap some of the older units entirely and adjust the capitalization of the companies accordingly.

Those who favor such a plan point to the present condition of the major news print groups as justification for their viewpoint. Consolidated Paper—formerly Canada Power and Paper—is now operating with an interest moratorium on its funded debt. Fraser Companies has proposed plans for a similar waiving of bond interest. Abitibi has defaulted technically on its bond interest. Price Bros. is asking for a waiver on bond sinking fund and a temporary relinquishment of the cumulative provision in connection with the preferred stock.

The New Tariff On Lumber

Barred out of the United States by the new tariff law, the British Columbia lumber industry is about to launch a world-wide drive for new markets, according to a despatch from Vancouver. In cooperation with the Provincial Government lumbermen are planning a campaign for business in China, Japan, South Africa and every country which buys lumber in any quantity. Meetings to organize this campaign will be held during the next few days and will be attended by the Hon. N. S. Lougheed, Minister of Lands, representing the Government.

One of the first steps in the lumbermen's drive, it is expected, will be an effort to secure a federal shipping subsidy to exported lumber. This is desired to put B. C. lumber in as good a position in world competition as American lumber, which enjoys a subsidy of $4 per thousand feet. A similar subsidy for the Canadian product is proposed.

"British Columbia has simply got to fine-comb the world for lumber business now that the American market is closed," Mr. Lougheed said. "Unless we can get new business many of our mills must close. Few of those in Vancouver, for example, could continue to operate. But we believe that new markets can be developed and must be developed.

"In the British market, which offers us enormous possibilities and a business sufficient to restore our industry, if we can secure it, we are doing everything in our power to secure a tariff preference," he said.

Demand for Paper Seasonal In Philadelphia

Volume of Inquiries Received for Various Standard Grades of Paper Indicates Broader Orders for Tonnage When General Business Conditions Improve—Kraft Wrapping Paper Market Continues to Exhibit Fairly Strong Undertone

PHILADELPHIA, Pa., June 13, 1932—With seasonal demand the main support of the local paper market, there is little prospect of immediate general improvement, although inquiries would indicate that broader orders are to be forthcoming when business warrants stocking for future consumption. Manufacturing paper representatives report that inquiries for prices are more frequent and for larger quantities, although they have not been able to induce prospective customers to place their needs at this time. This is particularly true of the large consumers of fine paper, such as printers and publishers, where tonnage orders are contracted. While consumers dicker over prices the trade has been confronted with keen competitive bidding.

The wrapping paper division, on the contrary, is steady, and the kraft market the strongest that has been noted in some time. Twines are much lower and there is a surfeit of offerings to paper dealers at prices that are said to be the lowest in the past score years for the full line of cotton and hemp products. There is a price war in paper boards, induced by the extreme dullness of that division of the local industry, and inducements made to secure tonnage by large mills with heavy overhead.

Strike At Kieckhefer Container Mills

Following a cut in the wages of the employees of the Kieckhefer Container Company, at Delair, N. J., both the container plant and the manufacturing division have been shut down owing to a strike by the workers. The cut of 20 per cent in wages followed that of two previous reductions in wages of 10 per cent each, making a total cut in the current year of 40 per cent. The paper board mills and the converting plants are under picket duty of the workers who walked out in a body during the past week. The firm employs over 200 hands.

Tissue Paper Investigation

Local paper manufacturers and distributors are following with interest the action of the Tissue Paper Manufacturers' Association on the investigation which has been requested by the mills making these grades for sanitary purposes to have the Government look into the matter of harmful advertising. The Tissue Paper Manufacturers' Association took the initiative of having the U. S. Bureau of Standards investigate what they believe to be unwarranted advertising of caution against deleterious materials, such as acids, mercury and arsenic, which recently appeared in the advertising of a large tissue manufacturer in this section of the country and which was backed by statistics that claimed that of the 655 mills making such tissues more than ⅔rds of the mills whose papers were analyzed were shown to contain poisonous contents. This ad appeared in a trade publication and was the center of the controversy which has been aroused by distributors and manufacturers. Local manufacturers of tissues and paper distributors are behind the movement of the manufacturers for a thorough investigation in order to protect the industry and to promote unbiased advertising. Their argument is why should paper manufacturers engaged in tissue production of this character resort to such expensive chemicals as mercury or arsenic, when there are plenty of cheaper raw ingredients at their disposal which are absolutely safe and non-poisonous, a local distributor stated.

Philadelphia Jobbers Meet

With an attendance of fifty associates in the jobbing branch of the paper industry at its meeting held in the Elks Club on Wednesday, the Philadelphia Paper Jobbers' Association continued to discuss formative plans for various activities and introduced the first of the series of educational talks to proprietors of the jobbing houses and their sales staffs. President Nathan D. Isen, of the association, and head of the Enterprise Paper Company, talked on problems of business administration, their costs, and the necessity of considering these in selling paper products. He stressed what costs mean to the profitable conduct of business and urged the staff members not to sell price, but to sell self, merchandise and service to consumers. He further informed the salesmen on what it means to consider the matter of costs of conducting successful business and inspired them to go thoroughly into such costs so that they could more intelligently discuss paper selling among the consumers.

Another factor which is interesting the Jobbers' Association is that of business ethics. The newly appointed Ethics Committee comprises the following members:—D. M. Roseman, Federal Paper Company, chairman; Elwood Basler, Frank Dubin, Dubin Paper Company, Ben Weiner, salesman for Louis Resnick & Son, and A. Goldberg, on the sales staff of Enterprise Paper Company. The committee will arbitrate ethical problems among the members and will promote an educational program in ethics. Charles Resnick, chairman of the Credit Interchange Committee, talked on features necessary for organization of a Credit Interchange system and methods to be adopted.

The Cost Finding Committee which has been created to look into the problems of trade practices and costs of doing business reported on its activities. The members appointed to the Cost Finding Committee are: D. M. Roseman, chairman; Harry Kornberg, Acorn Paper Company; Samuel Krepow, Lewis Gerber, Enterprise Paper Company, and Samuel Feldman, on the staff of the Enterprise company; Samuel Zacher, Atlas Paper Company, and Charles Goldman with Myer Goldman, Reading Terminal Paper House.

New Glassine Processing for Paper Boards

An entirely new idea in the way of treatment of paper boards so that they will be given a glassine coating with all appearances of the glassine covering which formerly was used, has been introduced to the trade by the Paper Processing Company, which has taken over the old Pinco Papers Inc. mills in Camden, N. J. The heads of this firm are Allen M. Mathews, former vice president of the Corn Exchange National Bank and president of the Aldine Trust Company, and George Leavitt, who formerly operated the Perseverance Mills, at Lambertville, N. J. The firm, while making a specialty of glassinizing double and single Manila patent coated boards, is also engaged in a

similar processing for all kinds of paper boards and is prepared to give this glassine coating to binder, and other boards used by the box and bookbinding, stationery and other industries. The new processing makes the boards absolutely grease proof and moisture proof. Box makers have been sending their boards to the plant to have them glassined prior to converting with much success, and the firm is ready to extend its production to take care of increased business as its new processing formula gains in favor. The new processing is at less cost than book lining of boards.

New Machine for Collapsible Board Converting

J. D. Tennant, with offices in the Terminal Commerce Building, 401 North Broad street, has perfected his own patented machine for converting paper boards into collapsible products, such as boxes, containers and allied lines, and is marketing his machine through his own concern, the Penn Automatic Machine Company, with offices in this city in the same building and plant to be located in York, Pa. The new machine is developed so that a perfect collapsible paper board product is turned out. It was perfected after the originator of the unit had investigated other types of machines on the market and found out their flaws, and by perfection of mechanism has eliminated all such defects, providing a perfect collapsible box or container. It has been used for making hosiery, candy and other shallow boxes with great success.

William Mann Co. Changes

Following the closing of the retail stationery store for more than forty years located at 5th and Market streets, the William Mann Company, organized for almost a century, has merged its manufacturing plant with the retail store and will confine its sales to telephone communication as most of its lines are so standardized as to make this means of selling profitable. With the announcement of the change in the retail selling policy, the firm also announced the reorganization of the personnel of the official staff with William Mann Prizer remaining as president and retirement of Cooper P. Prickett as treasurer, after more than half a century in its business conduct. Other officers will be elected at the meeting of stockholders on June 28. The Mann company has been engaged in the paper and bank and corporation stationery trade for nearly a hundred years and is nationally known. It has a national reputation for its copy papers, the Shen King, made in its mills at Lambertville, N. J., for more than sixty years.

With the changes effective in the business of the William Mann Company, there has been added to the staff of that company as purchasing agent James McCracken, one of the well known and long associated members of the Philadelphia paper trade. Mr. McCracken was for many years sales manager for the Reigel Paper Company, leaving that concern upon reorganization into the present Paper Merchants, Inc. Since that time he has been connected with the Garrett Buchanan Company on its sales staff. Another trade associate and former treasurer of the E. J. Spangler Company, envelope manufacturers, Claude M. Campbell, has become affiliated with the William Mann Company as general manager.

George W. Page Dead

George W. Page, vice-president and a director of the W. A. Jones Foundry and Machine Company, Chicago, Ill., died at his home on May 29. Mr. Page had been with the company for 33 years, beginning his career as a shipping clerk in 1899. He was 51 years old.

Glazed and Fancy Paper Men Meet

The Glazed and Fancy Paper Association held its regular spring meeting at the Hotel Commodore, New York City, Tuesday, May 24. It was a joint meeting of both the distributors and manufacturers divisions. Twenty-three persons were present representing fifteen different member comanies. President John MacLaurin of McLaurin-Jones Company presided.

W. O. Lichtner of Thompson Lichtner Company, Inc., engineers, Boston and Chicago, spoke after the luncheon on the subject "Making Wastes Yield Profit." He used several interesting charts to illustrate the talk. Questions from members and general discussion followed.

The executive committee met in the morning and considered reports from all the various committees. It was voted to have the next meeting in Springfield, Mass., on Tuesday, October 18.

The chief business of the members' meeting held following the luncheon was to hear and act upon the report of the Sales Promotion Committee given by its chairman, A. L. Schlesinger of the United Manufacturing Company. Mr. Schlesinger introduced L. W. Hutchins of the firm of Sheldon, Morse, Hutchins and Easton of New York City. Mr. Hutchins spoke on the subject of "Association Marketing Activities." He said that sales promotion by trade associations needed market research and merchandise research as a basis for developing a definite plan. The plan decided upon should then be coordinated with the sales efforts of the individual members. Individual products of individual concerns should not be included in an association's sales promotion work. The meeting decided to consider this matter further with Hutchin's firm.

Mr. Schlesinger reported that his committee had considered various plans for sales promotion by the association including the plan presented by last year's Sales Promotion Committee. The committee had decided that it could not recommend this latter plan or any other plan that it had thought of. It felt that more expert advice was needed before the Association spent money for such work.

Following this report the meeting was opened for general discussion of members' current problems under the general heading of Waste. The secretary, L. I. Houghton, opened this discussion by pointing out that waste occurs not alone in the factory but occurs in sales terms, sales discounts, credit granting, price schedules, price cutting, etc. Various members discussed these matters. It was the consensus of opinion that in this industry sales could not be increased by decreasing prices.

The question of what may be considered normal business for this industry was discussed and referred to the accounting and statistical committee of which H. F. Bergstresser of Dejonge & Co. is chairman.

The problem of the disposal of seconds and close-outs was discussed and referred to the Trade Custom and Conference Committee of which E. W. Zentgraf of Louis Dejonge & Co. is chairman.

B. A. Van Winkle Resigns as Manager

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., June 13, 1932—Word has been received here of the election to president of the Hartford City Paper Company at Hartford City, Ind., of B. A. Van Winkle, who has been vice-president and general manager of the company. He will be succeeded as vice-president and general manager by Olaf Hedstrom who has held the position of plant superintendent for a number of years.

Toronto Paper Market Only Moderately Active

Cheaper Grades of Fine Paper Moving In Fairly Good Volume—Some Improvement Noticed In Demand for Kraft Wrapping Paper—Paper Mill Operations In Ontario Maintained On Reduced Scale—Bonds, Ledgers and Writings In Fair Request

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., June 13, 1932—A fair amount of business is passing in wholesale paper circles although the trade generally is beginning to feel the effects of the approaching holiday season. Fine papers are selling fairly well, particularly the cheaper grades, and while coarse papers are somewhat draggy, there has been some slight improvement of late. In both sections the market is more or less spotty although on an average sales are keeping up as well as can be expected in these depressed times. The feeling among the paper wholesalers is distinctly optimistic and the experience of most of them is that business is procurable if the necessary amount of vigor is put into the effort.

Paper mill activities are about as they have been for the past several months—that is operations are being carried on on a reduced scale in nearly all sections of the paper manufacturing industry. Book paper mills are perhaps the busiest, although in this, as well as in practically all classes of fine papers, there is considerable difficulty in keeping any distance ahead of the machines. While the call for bonds, writings and ledgers is fairly steady the mills could handle a good deal more tonnage than is being placed. Coated paper mills, for instance, are only operating at about fifty per cent capacity and there is no immediate prospect of improvement in the coated paper market.

There has been a serious falling off in the number of catalogs usually printed and not a few commercial firms hitherto putting out catalogs are now sending out temporary price lists on the plea of unsettled conditions of finance and commerce generally. This trade, however, is expected to come back following the Empire Conference soon to be held at Ottawa and the paper trade generally hopes to reap considerable benefit from the deliberations of that gathering.

Hydro as Partner for Abitibi

Delay in completing arrangements for financing of the final construction program of the Ontario Power Service Corporation's development at the Abitibi Canyon is stated to hinge upon proposals whereby the Hydro Electric Power Commission of Ontario may become a partner of Abitibi in this power undertaking. From available information, in the absence of official statements either from officials of the Abitibi Power and Paper Company, the Ontario Government and the Hydro Commission, it appears that three proposals have been under consideration. One is that the province guarantee a loan of $5,000,000, the sum required to complete the development; the second is that the Hydro Commission advance the cash from its accumulated reserves and the third is that the Hydro Commission assume a partnership interest in the Power Service Corporation's undertaking and on that basis finance the final stages of construction.

Premier Henry states this week that while negotiations have been in progress for some time, following requests for aid from the company, no policy had as yet been laid down by the Government. At the same time it was learned from Abitibi officials that negotiations had not yet reached a stage at which an announcement could be made. In other circles it is intimated that either one of the first two above plans have been favored by the company. The Hydro Commission is understood by these interests to favor a partnership basis, especially as the Ontario Government and Hydro have spent upwards of $2,000,000 upon construction of a transmission and distribution system from the Canyon to Sudbury.

It is suggested that should the partnership scheme be adopted, the present bond issue of the Ontario Power Service Corporation, consisting of $20,000,000, bearing a five and a half per cent rate due July 1, 1950, may be replaced by a new issue, expanded to meet ultimate construction requirements, maturing on the same date, but bearing a coupon rate of four and a half per cent. It is stated that this proposal is the rock upon which negotiations up to this time have been stuck. Ontario Power Service Corporation is a wholly owned subsidiary of Abitibi Power and Paper Company and to some parties the fact that the Hydro Commission had contracted to buy from Ontario Power a total of 100,000 hp. for the delivery of which the transmission line has already been built, suggests that a partnership arrangement would be a suitable one from Hydro's standpoint. The development is designed to produce 300,000 hp. Completion of the Canyon project is guaranteed by the Abitibi company, but the recent unfavorable condition of the money market has made the raising of the necessary funds impossible by the usual methods.

Boxboard Co. Acquire Fiber Plant

It was announced in Toronto this week by E. Newell, president of Dominion Boxboards, Ltd., Duchess street, that his company had taken over Fibre Boxes, Ltd., located on Commissioner street, Toronto, where the company has one of the most modern corrugated and fiber plants in Canada. The Dominion Boxboard mill will supply the fiber boxes with all their jute liner and cylinder kraft liner. The Dominion Boxboards, Ltd., is owned and operated by the Dominion Envelope and Cartons, Ltd., who also control the Dominion Envelope and Cartons (Western) Ltd., with factories at Winnipeg and Edmonton.

Pulpwood Sales Have Been Halted

The established rule of the Department of Lands and Forests against the exporting of raw materials from Crown lands will not be broken, it was announced this week by the Hon. William Finlayson, who stated that the Government had decided, following advice from local representatives of the Thunder Bay district, to withdraw the invitation extended to pulpwood contractors to submit tenders. The proposition, which would have involved the breaking of Governmental precedent, and which was put forward by certain pulpwood operators in the district, was that half of 100,000 cords of pulpwood, which was to have been cut and sap-peeled in Booth, Purdom and Ledger Townships, Nipigon, should be exported. It was claimed that the unemployment situation in the district justified such a change of Governmental policy, since hundreds of men would thus be employed. Mr. Finlayson's conference with the Municipal Councils and the Chambers of

Commerce of Fort William and Port Arthur revealed that local views were opposed to the proposition, and that it was apparently thought there that the unemployment situation could be handled without recourse to any change of policy on the Government's part. In consequence of this opinion, Mr. Finlayson stated, the invitation for the submitting of tenders had been withdrawn.

The first importation on kraft paper from Finland in the memory of customs officials will result in an early investigation of conditions in this market abroad. The paper was imported at such a low delivered figure that the Import Committee of the American Paper Industry has filed notice of a suspicion of undervaluation.

The English Market for Pulp

The plan recently broached by which Canada might enter the English market for wood pulp on a competitive basis has aroused some discussion, and some prominence has been given in the local press to a statement by "a leading figure in the Canadian pulp trade" pointing out that the idea is impracticable, unless tariffs are imposed.

According to this statement, it is quite evident that manufacturers and shippers of Canadian wood pulp, who have to stand the expense of a much longer haul than is required for Scandinavian pulp, cannot compete on equal terms against the latter for deliveries on the English market unless some facilities are afforded by way of a tariff preference at the forthcoming Imperial Conference. It is further stated that in so far as Canadian manufacturers are concerned they have had no part in negotiations with British consumers with a view to obtaining favorable consideration for Canadian wood pulp without preferential duties.

Pulp and Paper Companies Asking Aid

Within the past couple of weeks several pulp and paper companies have come to Ottawa seeking cash assistance from the Federal Government under the special powers taken in the 1932 Unemployment Relief Act. These companies have urged that prevailing conditions in the industry are such as to warrant immediate Federal assistance, and that they constitute, in fact, a crisis. The powers they are requesting the Government to exercise are set out in the statute as follows: "The Government is authorized to loan or advance money to or guarantee the payment of money by any public body, corporation or undertaking." While the Government has full authority to take money out of the Consolidated Fund for the paper industry, or any other industry, provided it is deemed necessary "to protect the credit and financial position of the Dominion" there is no indication that the Government will consider the request favorably.

Notes and Jottings of the Trade

With an authorized capital of $40,000 and with headquarters in Toronto, the Wedlock Paper Bag Company, Ltd., has been granted a charter to conduct business as manufacturers, dealers and exporters of all kinds of paper, paper board, pulpwood, pulp, etc.

Supplementary letters patent have been granted to Canada Paper Company, allowing it to change its 20,000 shares of no par common stock into a similar number of shares having a par value of $5 each. Authorized share capital of the company hereafter will be $3,000,000 of 7 per cent preferred stock, of which $1,250,000 has been issued, and $100,000 of common stock. Canada Paper Company is a subsidiary of the Howard Smith Paper Mills.

An action claiming $20,000 taken by the family of the late Joseph Gefforoy, who was accidentally killed in December, 1927, against the Anglo-Canadian Pulp and Paper Company was dismissed with costs in the Superior Court of Quebec. Defense counsel proved that the widow of the victim of the accident had accepted a settlement of $3,050 from the paper company and, contrary to the claim of the plaintiff, that amount was to indemnify not only the widow but the children as well.

George C. Winslow, sales manager of the Alliance Paper Mills, Toronto, has left on a business trip to Winnipeg. Before his return he will have an extended fishing and hunting trip into the far north country.

Following the failure of the Charles V. Syrett Paper Company, Mr. Syrett, head of the concern, has started up business in the wholesale coarse paper line, under the name of the Syrett Paper Products Company. The old premises on Front street, Toronto, are being utilized.

Tenders are being placed with the Kimberley-Clark Company, Neenah, Wis., for the construction of a new plant on Victoria avenue, Niagara Falls, Ont., for the Kotex Company of Canada, Ltd., 554 Queen street, Niagara Falls. The plant will be two stories, 115 x 179 feet, of brick and structural steel construction.

Work will be commenced at once on construction of a one story, brick and concrete addition to the plant of Fiber Boxes, Ltd., Commissioner street, Toronto. The structure is to be used as a boiler house.

Directors of the F. N. Burt Company, Ltd., have declared a quarterly dividend of 60 cents a share on the common stock payable July 2, in lieu of 75 cents a share as formerly. It is understood that the company's profits to date are about the same as for the corresponding period of last year.

Boston Paper Market Conditions

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 13, 1932—A moderate amount of paper moved in the Hub during last week. While individual reports vary, the consensus of opinion is that June has made a fairly favorable showing with a number of wholesalers, both of fine paper and kraft. Some new lines, including bond papers, continue to be offered. Purchasing, however, is being done very conservatively. As previously noted in these columns, much uncertainty has been relieved by the passage of the tax measure, but business would progress more freely if the general situation were more settled. The board market is rather quiet, although dealers and manufacturers are optimistic.

The paper stock market remains quiet. A sale of a comparatively small amount of foreign gunny bagging took place during the week at 1 cent, f. o. b. Boston. Any price changes have been downward. No. 1 mixed paper is quoted at a minimum figure of .13½, while the maximum remains at .17½. Print manila has been marked down from .35 to .30 on the low side, while the maximum continues at .40. Roofing stock has also declined in value.

Log Drive on Hudson Under Way

GLENS FALLS, N. Y., June 13, 1932.—The annual log drive on the Hudson River is now under way with a movement of 27,000 cords of pulpwood from the vicinity of Luzerne in the Adirondacks to the mills of Finch, Pruyn & Co. here. A large force of lumberjacks are kept steadily employed and the company's huge timber tract near Newcomb has been the scene of extensive operations for some time. A number of other paper mills in this section are also taking advantage of good river conditions in obtaining their season's supply of pulpwood.

Status of Wisconsin Paper Industry Compared

According to Tax Commission, Statistics Comparing Earnings and Losses In 1929 and 1930 Reflect Result of General Business Depression — Net Income For Entire Industry Was $14,070,600 for 1929, Compared With $3,092,100 for 1930

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., June 13, 1932—Net profits of the paper industry of Wisconsin as a whole showed quite a contrast in 1930 to the earnings of the peak year of 1929, according to statistics published by the Wisconsin Tax Commission. Corporation income returns for 1929 showed net taxable incomes of $14,803,200 and losses of $732,600. In 1930, net taxable incomes were $5,273,500 and losses were $2,181,400. The net income for the entire industry after deducting the losses therefore was $14,070,600 for 1929 as compared with $3,092,100 for 1930, or a decline of nearly 80 per cent. The net return on book investment after deducting losses was 1.93 per cent.

The following tabulations show the status of earnings and losses, and reflect the result of the business depression:

	1929 Taxable Incomes	Losses	1930 Taxable Incomes	Losses
Total	$14,803,200	$732,600	$5,273,500	$2,181,400
Paper	12,977,100	353,600	4,266,900	1,351,900
Containers	334,600	343,600	146,100	669,900
All other paper pulp & products	1,491,500	35,400	860,500	159,600

NUMBER OF PLANTS SHOWING INCOMES OR LOSSES

	Total Reporting	1929 Incomes	1929 Losses	1930 Incomes	1930 Losses
Total	104	78	25	60	44
Paper	43	34	9	26	17
Containers	33	21	11	17	16
All other paper, pulp & products	28	23	5	17	11

(1 container plant reported neither income nor loss in 1929)

BOOK INVESTMENT AND 1930 TAXABLE INCOME OR LOSS

Total for all Plants

	No. of Corporations	Book Investment	Net 1930 Taxable Incomes	% of Income to Investment
Total	93	$92,688,000	$1,790,400	1.93
Paper	40	73,351,006	1,154,400	1.57
Containers	29	6,374,000	75,100*	1.18*
All Other Paper, Pulp & Products	24	12,963,000	711,100	5.48

* Net loss

Plants with Taxable Incomes

Total	57	59,924,000	3,487,500	5.82
Paper	25	44,111,000	2,482,000	5.63
Containers	17	4,644,000	146,100	3.15
All Other Paper, Pulp & Products	15	11,169,000	859,400	7.69

	Plants with Loss		1930 Loss	% of Loss to Investment
Total	36	32,764,000	1,697,100	5.18
Paper	15	29,240,000	1,327,600	4.54
Containers	12	1,730,000	211,200	12.78
All Other Paper, Pulp & Products	9	1,794,000	148,300	8.27

Unemployment Insurance Plans

Standard plans of unemployment insurance will be submitted to paper mills and other industries of Wisconsin soon for adoption, if they do not wish to be forced to adopt a compulsory plan in 1933. Unanimous approval has been given by the state advisory committee on a standard unemployment insurance benefit plan, a standard guaranteed employment plan and a statement of allowable variations from either of these plans. Various plans in use by industries were submitted to the committee and standards were adopted after conferences with the Wisconsin Industrial Commission. This is in conformity with a new state law requiring voluntary adoption of unemployment insurance before 1933, when compulsory insurance will go into effect. The action of the committee enables industries to adapt the plan to their particular situations. A number of leading paper mills already have placed such plans in effect.

Pulp Mill Destroyed by Fire

Wisconsin has one less pulp mill as the result of a disastrous fire on May 30, when the Kaukauna Ground Wood and Pulp Company, Kaukauna, Wis., plant was completely destroyed. The building burned to the ground and the machinery and equipment were a total loss. The total estimated loss is $50,000, partly covered by insurance. The blaze appeared to have originated in shavings in the wood room, and the two story frame building was completely enveloped in flames by the time the fire department arrived. Operation of the mill has been suspended for about a year due to low water conditions. It will not be rebuilt, according to a statement of M. H. Niesen, president and general manager.

A. F. Butenhoff Dead

Albert F. Butenhoff, a mill-wright at the Marathon Paper Mills Company, Rothschild, Wis., died last week. The end came following a heart attack after returning to his home from a day's work at the mill. He was 66 years old.

News of the Industry

Construction of a new warehouse adjacent to its mill at Combined Locks, Wis., has been started by the Combined Locks Paper Company. It will be of concrete and brick and will be 180 by 60 feet in size. The cost will be approximately $18,000. Additional paper storage space will be provided by the new unit. C. R. Meyer & Sons Company, Oshkosh, Wis., has the contract.

Kimberly-Clark Corporation, Neenah, Wis., placed in effect last week a six-hour day at the Badger-Globe mills, Neenah, where cellucotton is made for the Kotex company subsidiaries producing absorbent products. The mills will run on four shifts instead of three of eight hours, in order to give employment to as many people as possible. The cellucotton division has enjoyed steadier schedules during the last year than the paper and pulp mills of the corporation, due to a more steady demand for these products. The hour rate of the workmen remains the same.

Within about two weeks the Thilmany Pulp and Paper Company's new building at Kaukauna, Wis., that will house the bag division to be moved from Waukegan, Ill., will be completed. Interior partitions are now being erected. Moving of equipment and its installation will start immediately thereafter with the expectation of having operations start as near July 1 as possible. The company's printing division opened recently with the use of rubber plates and aniline dyes has been making progress and a demand for specialty wrappings and other completed products is being steadily built up. Machines were imported from Germany for this process.

In an effort to protect Wisconsin freight rates against any change, the Wisconsin Paper and Pulp Manufacturers' Traffic association has entered a case before the Interstate Commerce Commission involving rates on pulp board and kindred products. The case is that brought by the

Terre Haute Paper Company and the Auglaze Box Board Company, attacking rates from Terre Haute, Ind., and St. Mary's, Ohio, to points in official territory and all of Illinois, to west bank of Mississippi river cities in Missouri and Iowa, to Wisconsin points, and to St. Paul, Minneapolis and Duluth in Minnesota. The present rates are attacked as unjust and unreasonable, and in comparison with Wisconsin rates, particularly those of the Fox River Valley, unduly discriminatory. The Wisconsin association's brief asserts the Wisconsin rates are not unduly low and should not be changed. It says: "The purpose of this intervention is to protest against the issuance of an order, direct or alternative, under which rates on pulp board may be included from Wisconsin and upper Michigan."

The marriage is announced of Gavin W. Young, Jr., of Neenah, Wis., vice-president of the Edgewater Paper Company, Menasha, Wis., and Miss Dorothy Nelson, of Gillett, Wis. The couple is spending a honeymoon in northern Minnesota and will reside at Neenah.

Charged With Depressing Prices

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 13, 1932.—The Federal Trade Commission has issued an amended complaint against the American Box Board Company, American Coating Mills, Eddy Paper Corporation, Mac Sim Bar Paper Company, Michigan Carton Company, Morris Paper Mills, Sutherland Paper Company, National Biscuit Company, and A. F. Meisterheim, of Chicago, Ill.

The Commission sets forth that all of the respondents use waste paper in their manufacture of new products, and that they purchase a large part of the waste paper of Chicago. It is further alleged that the respondents entered into an agreement with Meisterheim "for the purpose and with the effect of fixing and maintaining depressed uniform prices to be paid by respondent corporations for waste paper purchased by them and offered to them by waste paper dealers in and near the city of Chicago." Meisterheim made the purchases for all of the respondents, the Commission states, in the Chicago area. The Commission contends that these acts tended to "substantially lessen, restrict and suppress competition in the purchase by them in interstate commerce of waste paper so that the prices agreed upon by said respondent corporations and by said respondent, A. F. Meisterheim, at all times since May, 1929, have been substantially uniform and non competitive." Other charges are also made by the Commission in the same complaint.

The respondents in their answer filed with the Commission deny the charges of the Commission and deny "that there has been any combination agreement or conspiracy as alleged."

The answer states further that "the proceeding by the Commission is not of interest to the public, but is the result of an individual and private controversy of no public interest" and they ask that the complaint be dismissed.

Appointed Adirondack Distributors

The International Paper Company announces the appointment of Cook-Vivian Company, Inc., 189 Congress street, Boston, Mass., as distributors of Adirondack Bond and Ledger. They will carry a complete stock of all items.

Herman Scott Chalfant Inc. Expands

Herman Scott Chalfant Inc., pulp and paper distributors, have enlarged their offices and added to their executive staff. The firm remains in the same location, the Canadian Pacific Building, New York, but with double the space formerly occupied.

It has always been the policy of this concern to combine practical paper making knowledge with sales experience, and in this respect it is unique, as every member of the force has had manufacturing experience, enviable records in the sales field, and broad knowledge of consumers' problems. Mr. Chalfant is fortunate in securing the two new members of the executive staff who are well able to fill these rigid requirements.

Harry I. Prankard has assumed the duties of vice-president in charge of special papers for converters. Mr. Prankard has had many years experience in the manufacturing end, having been associated with the Frank Gilbert Paper Company and the Mohawk Paper Mills, Inc., for the past twenty-eight years, where he was both sales manager and superintendent of manufacture.

Willard M. Pringle also becomes vice-president. Mr. Pringle, formerly vice-president of the Seaman Paper Company of New York, and more recently Eastern sales manager of the Bryant Paper Company, is well known in the paper trade as one of the most experienced and successful sales executives in the industry. Mr. Pringle will continue to give the benefit of his wide experience to his old customers and friends.

The addition of these two capable executives to the present staff rounds out a full compliment of men with long manufacturing and sales experience. H. S. Chalfant, the president, was the chief engineer and superintendent of the Laurentide Paper Company and manager of manufacture of the Tidewater Paper Mills, and for the past thirteen years has been the head of his own business, directing the sale of paper and pulp with great success.

Joseph H. McCormick, vice-president, was formerly secretary of the John A. Manning Paper Company and vice-president of Henry Lindenmeyer Sons, and is one of the best liked and most experienced men in the paper business.

Edwin D. Peck, secretary of the company has been associated with Mr. Chalfant for ten years, and was formerly sales manager of the Reading Paper Mills, Reading, Pa.

When Mr. Chalfant was asked his reasons for enlarging the personnel of his business, as well as his quarters, he said he was firmly convinced that the upturn in the paper business, as well as in general business was close at hand, and that we are about to experience a great revival of activity and greater demand for paper. Also, that this is the time to make preparations for this upturn, to get one's house in order for big business, for said he, "When it begins to rain soup, I don't want to be caught holding a fork."

Brotherhood Completes Wage Conference

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., June 4, 1932—Officials of the International Brotherhood of Papermakers have completed wage conferences with many of the prominent paper manufacturers and agreements have been reached in a majority of cases. The new contracts without exception call for decreases of about ten per cent in wages. Among the most important conferences scheduled is one with the St. Regis Paper Company which will take place late this month.

Chicago Paper Market Practically Marking Time

Fine Paper Section Spotty, With Bulk of Business Transacted Consisting of Orders for Small Quantities—Kraft Wrapping Paper Division More Buoyant, With Prices Well Maintained —News Print and Ground Wood Papers Unchanged

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., June 11, 1932—All indications point to a strong possibility that the Chicago paper market is entering into an extremely quiet spell which is not expected to terminate until early in the Fall. With the summer season normally dull, prevalent business conditions combine to make little or no news as far as market conditions are concerned. Reports from the ground wood and news print markets point to no changes during the past seven days period. The markets have made no particular progress nor—and in many sources this is held as encouraging—have they shown any tendency to get worse. "Marking time" seems to be the universal comment.

Retail Demand for Kraft Improves

The retail kraft business in this sector is said to have shown a bit more liveliness during the past week but of not sufficient volume to add materially to any improvement in the entire market. Prices continue fairly stable. Fine papers continue to be favored with only orders for small quantities, in general, and market conditions are reported as quiet, although there is sufficient business here and there to characterize the market as "spotty." Books and covers remain little changed over the week and give little promise of materially improving until Fall business—and the long expected improvement—shows itself. Waste papers are very quiet, with many of the waste paper jobbers reported as having a difficult time finding any sort of a market.

Big Order for St. Regis

Montgomery Ward & Co., big Chicago mail order house, will get its summer supply of paper for its nationally distributed catalogs by way of the Great Lakes. The St. Regis Paper Company will ship, during the season when Lakes navigation is possible, about 2400 tons of paper a month. Two shipments will be made during each thirty days and the average tonnage carried on each boat will be about 1100 tons. With the season lasting from May until late in November it can readily be seen that the water shipments will form quite a slice of the contract business between St. Regis and the Chicago mail order house. It is reported that a saving in transportation will be made amounting to between $1.50 and $2.00 a ton. The paper, a grade of news print used by Wards in the publishing of their catalog, will go from the St. Regis mills to Ogdensburg by rail and then be placed on board ship, sent up the St. Lawrence River and through to the Lakes by the Welland canal.

Salesmen Plan Golf Events

The Middle West Division of the Salesmen's Association of the Paper Industry is expecting a large number of out-of-town visitors at the second of the monthly golf events which will be held on June 24 at the Sunset Ridge Country Club. The visitors are expected to come, for the most part, from the meeting of fine paper executives along the Fox River Valley to be held at Appleton, Wis., on June 23. The salesmen are urging those in attendance at the Wisconsin meeting to journey on to Chicago for the Sunset Ridge celebration.

City Sealer Addresses Paper Merchants

Eighty-five coarse paper men, including members of the Chicago Paper Association and their guests, held an important business session at the Bismarck Hotel on Monday evening, June 3. Joe Grein, new City Sealer under Mayor Cermak's regime, was the honored guest and main speaker of the evening. His appearance on the program was a continuation of the efforts being made by the association to place the business ethics of coarse paper members on the highest possible plane and to counteract unethical practices more prevalent at this time because of slack business conditions. Frank D. Peck, president of the Hanchett Paper Company and an important officer of the association, presided. Earl Beyer, president of the association and J. H. Conway, president of the Hoberg Paper and Fibre Company, both made short talks prior to Mr. Grein's address.

The City Sealer outlined the work of his department as it pertains to the coarse paper industry, pointed out a number of alarming conditions as he had found them and in general, urged the association to continue its meritorious efforts by pointing out what had been going on and might continue to go on unless strong cooperative measures were used to clean up the weight situation. The speaker was warmly received by the association and his explanatory remarks and discussion of business ethics in general were equally well received.

The association will hold a regular business session on the evening of June 14, at which time the members will be asked to give final consideration to the matter of joining the National Paper Trade Association. It is also expected that the date and place of the regular summer golf outing will also be announced by Leo Altholz, who was appointed chairman of a committee to make the necessary arrangements.

News of the Trade

Guy Waldo, vice president and general manager of the Flambeau Paper Company, was in Chicago on business for two or three days during the week of June 6. He visited a number of paper offices but was to be found, most of the time, nearby the Flambeau Chicago offices in the Conway Building, where J. H. Coy holds forth.

Rube Swan, for a number of years assistant sales manager here of the International Paper Company, became identified, on June 1, with the Champion Coated Paper Company, of Hamilton, Ohio. Mr. Swan is now at the Champion mills spending some time in looking over the procedures followed in arriving at the finished Champion products.

"Hammermill says two pages full about New Hammermill Bond" reads the outside flap of a folder recently mailed out from the Swigart Paper Company offices at 723 South Wells street, Chicago. The broadside contains a reproduction of a two page spread recently featured in the *Saturday Evening Post*. The advertisement features the recent "tough erasing tests" which the reader is invited to make in testing the quality of Hammermill Bond. Some of the Hammermill tests are illustrated and discussed, including the "eye test," made by Hugh E. Agnew, chairman of the department of marketing of New York University.

Boston Paper Trade Holds Successful Outing

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 13, 1932.—The annual spring outing of the Boston Paper Trade Association, held at the Charles River Country Club, Newton Centre, Mass., on Monday, was one of the most enjoyable ever, with the novel program arranged by the executive committee much appreciated. Approximately one hundred were present, including a number of manufacturers.

A buffet luncheon was served in the locker building in the early afternoon. The various sports followed, continuing until about 7 o'clock when a bang-up good dinner, according to announcement, was served at the club house. One of the gala events in the outdoor sports, not scheduled on the program, which took place just before the dinner, was a foot race between Floyd H. Blackman, of D. F. Munroe & Co., and Royal P. Teele, of the R. P. Teele Paper Company. The course was from the first tee to the first hole of the golf course. The race was a wonderful spectacle, each competitor being cheered on by enthusiastic backers. Valiant efforts were made by each contestant, with Teele winning by a safe margin, unmeasured.

At the dinner President Charles A. Esty presided. A brief business meeting was held, in which E. T. Simpson, of New York City, proposed by Joseph Snell, was elected to limited membership. President Esty said that George L. Webb has an important announcement to make, which proved to be a brief humorous reading on "Prohibition in the Home."

Handsome Trophies Awarded

After the dinner, the beautiful sterling silver prizes, including plates, cups, vases and candlesticks, all well worth trying for, were awarded to the winners at golf and the field sports. W. N. Stetson, Jr., chairman of the golf committee, made the awards to those with the best scores on the course. In the contest for the Championship Cup, W. H. Anders, of the Nashua River Paper Company, tied with W. Edwin Porter, Jr., of Cook-Vivian Company, for first net, Mr. Anders winning on the toss.

Other results were as follows: First Gross, Norman Harrower; Second Net, Class A, W. Edwin Porter, Jr.; Low Net, Class B, Constant Southworth; Second Net Class B, W. J. McLellan; Low Gross, Class B, E. B. Sheaffer; Guest Low Net, H. C. Fowler, who was tied with H. L. Bigelow, Jr.; Blind Tiger, a special event, the drawing of a number between 4 and 9, with No. 9 drawn, won by E. B. Hay; Kickers' Handicap, with E. D. Bement, Graham Blandy, 2d, and E. Lindsay Cummings, all close candidates, Mr. Blandy winning on the draw.

Herbert C. Ham, chairman of the sports committee, awarded the prizes for the events as follows: Rolling on the Green, Arthur E. Ham and W. E. Hilton, the two heaviest men making the heaviest score; Horseshoe Throwing, Frank B. Cummings and F. O. Johnson; Casey at the Bat, jazz baseball, E. St. George; Treasure Hunt, H. O. Lindenbergh; Sheet Cutting Contest, James B. Ramage; Putting on the Green, a triple tie between L. E. Maglathlin, E. B. Hay and Herbert C. Ham, with Mr. Maglathlin's name drawn; Something Different, rolling to the shadow of a flag-pole, W. J. Raybold winning first and Thomas Compton Walsh second. Any contest the deacon, the winner of the first prize in Something Different, takes part in, is sure to be on the level.

The program closed with a sleight-of-hand performance by Richard Cartwright, much applauded.

The sports committee was composed of Herbert C. Ham, chairman, W. J. McLellan, Herbert Casey, Frank B. Cummings, John H. Brewer, R. F. Chapin, Fred W. Main and Willard H. Loud.

The golf committee consisted of W. N. Stetson, Jr., chairman, Norman Harrower, W. E. Porter, Jr., Nelson Feeley, "Don" Smith and E. D. Bement.

The officers of the association are: Charles A. Esty, president; Frank B. Cummings, 1st vice-president; F. Bendel Tracy, 2nd vice-president; Thomas H. Casey, treasurer, J. L. Hobson, secretary.

Those Who Attended

Those present were C. A. Esty, Albert R. Smith, J. L. Hobson, W. Gardner Very, Harold C. Upham, C. B. McDougall, W. J. McLellan, Arthur M. Burr, John E. A. Hussey, Charles S. Proctor, Arthur L. Hobson, Harry C. Thayer, Frank B. Cummings, W. J. Raybold, R. B. Rising, T. H. Casey, James Thompson, C. W. Nelson, W. H. Hilton, Hubert L. Carter, N. Harrower, John A. Andrew, W. N. Stetson, Jr., J. A. Moses, Geo. L. Webb, Donald K. Smith, Constant Southworth, J. H. Brewer, Fred B. Korbel, M. A. Park, H. C. Ham, E. T. Simpson, L. E. Maglathlin, D. K. Brown, W. Edwin Porter, Jr., J. W. Vivian, Arthur E. Ham, James B. Ramage, Wallace Graves, Walker B. Holmes, H. C. Fowler, Charles H. Wood, Geo. W. Wise, Jr., Herbert W. Lockhart, J. G. Swift, Jr., F. H. Keep, R. C. Sheldon, C. Frederic Wellington, E. B. Hay, F. H. Blackman, J. F. Blackman, Wm. C. Ross, John E. Roach, R. P. Teele, T. K. Davis, K. H. Ways, W. H. Anders, F. H. Merrill, A. P. Mitchell, W. W. Binford, Morgan K. Smith, E. Lindsay Cummings, E. D. Bement, Fred T. Burkhardt, Graham Blandy, 2d, K. B. Fullerton, Jr., E. F. Howarth, H. F. Bigelow, Jr., Nat Clark, F. O. Johnson, K. R. Humes, J. R. Whitney, E. R. Lyman, J. L. Munro, P. D. Poiner, C. W. Fields, E. B. Sheaffer, E. B. Sussenguth, Ralph L. Day, A. L. Ham, H. E. Hanson, C. C. Shaw, M. J. Baker, E. B. Dik, N. C. Allen, J. J. O'Brien, H. O. Lindenbergh, Earl S. Clark, T. Chas. Casey, J. L. Ham, Herbert J. Casey, E. St. George, Thomas Compton Walsh.

Boston Paper Trade Happenings

BOSTON, Mass., June 13, 1932.—A display in the window of the office of Carter, Rice & Co. Corp., which has been attracting much attention, includes a framed piece of George Washington's private water-marked stationery, arranged with a light underneath, so as to show the watermark. The paper is surrounded by a group of reproductions of original etchings, each executed by a distinguished American artist, depicting the better known episodes through the life of Washington.

Mrs. Thomas J. Wetzel has announced the engagement of Miss Louise Johnson Wetzel, daughter of the late Thomas J. Wetzel of New York and West Hyannisport, to James Lowell Ham, son of Mr. and Mrs. Arthur E. Ham, of Boston. Miss Wetzel attended the Ely School and was graduated, with the class of 1929, from Syracuse University, also the Katherine Gibbs School in Boston, 1930. She is a member of the Gamma Chi Beta sorority. Mr. Ham is a graduate of the Stone School, Boston, and is now in the wholesale paper trade. A wedding is being planned for late in the fall.

Percy D. Wells is handling a new line of paper, Uncle Sam Bond, a 30 per cent new white rag content, watermarked. This paper is cockle finish, tub sized and air dried. It is being advertised on attractive broadsides of red, white and blue.

New York Trade Jottings

S. D. Brooks, executive vice-president of the Powell River Company, Ltd., of Powell River, British Columbia, is a New York visitor this week.

* * *

A. E. McMaster, general manager of the Powell River Company, Ltd., of Powell River, British Columbia, is spending several days in New York this week in the interest of his organization.

* * *

O. F. Swanson, sales manager of J. Andersen & Co., and the Pulp and Paper Trading Company, 21 East 40th street, New York, is visiting Holyoke, Mass., this week.

* * *

John Spinelli, dealer in paper mill supplies, of 12 79th street, Brooklyn, N. Y., has been visiting paper mills in Virginia and Pennsylvania, and plans to return to his headquarters some time next week.

* * *

The New York offices of the Benj. C. Betner Company, manufacturers of high grade bags, of Devon, Pa., have been removed from the former location in the Salmon Towers Building to their own office and warehouse at 106 Water street. The telephone number is Beekman 3-8747.

* * *

The Great Atlantic Paper Company, of 79 Wooster street, New York, have appointed A. H. Pierson, Jr., as their Philadelphia agent. Mr. Pierson is located at 734 Drexel Building and his telephone number is Lombard 9668. The company is prepared to make overnight deliveries to their Quaker City trade from stock in their New York warehouse on printing, writing, wrapping and specialty papers.

* * *

Analomink Paper Mills Corporation, of North Water Gap, Pa., announces the appointment of the Great Atlantic Paper Company, Inc., of 77 Wooster street, New York, as their sole agent for the sale of manila, tag, bristols, cover, textile, bogus, die wiping, dynamite shell paper, black album, envelope, folder stock, imitation pressboard, colored specialties and folders.

* * *

Ron-Noc-O Paper Company, formerly the Warren Parchment Company, of Dexter, New York, announces the appointment of the Great Atlantic Paper Company, Inc., of 77 Wooster street, New York, as their sole agent for genuine watermarked bond, plain bonds, manifold vellum, manifold parchment, imitation parchment, greaseproof, carbonizing and waxing papers.

* * *

Charles W. Boyce, executive secretary of the American Paper and Pulp Association, was the guest speaker at the last luncheon and meeting of the season of the Eastern Division of the Salesmen's Association of the Paper Industry, held at the Hotel Roosevelt, New York. There was an excellent attendance, which spoke volumes for Mr. Boyce's popularity. The speaker declared that the industry was in fairly satisfactory shape from a mechanical point of view. Mr. Boyce recently visited some of the Western paper mills and said he was greatly impressed with the work of the technical men and the superintendents.

* * *

Through the courtesy of one of its members, J. L. Stille, of the St. Regis Paper Company, the Eastern Division of the Salesmen's Association of the Paper Industry has made arrangements to hold its first golf outing of the season at the Winged Foot Golf Club on Thursday, June 23. This course is a famous one and the golfing members will all want to take the opportunity to play there. Plans made for this outing will make the cost much less than in previous years. The total cost for luncheon and a day of golf will be five dollars. For those who want to stay for dinner there will be the added cost of the evening meal.

* * *

A brief prepared by H. F. Masman and C. J. Browne, traffic manager and assistant traffic manager of the New York Association of Dealers in Paper Mills Supplies Inc., 27 William street, New York, submitted to the Eastern Commodity Rate Revision Committee at Buffalo points out that the proposal to establish a basis of 27½ per cent of 1st class rates on waste paper and rags on a minimum carload of 24,000 pounds or 25 per cent of 1st class on 30,000 pounds is unsatisfactory. It is pointed out that scrap rope, strings, rag dust, carpet or felt mill waste and cotton factory sweepings should be included. It is also asked that 20 per cent of 1st class basis be established on hauls between trunk line, New England and Central Freight Association territory with minimum carload of 30,000 pounds. It is also suggested that 20 per cent of 1st class 24,000 pounds minimum be established on hands locally in New England and trunk line territories and between those territories.

To Stimulate Kraft Paper Use

A movement which should result in increased consumption of kraft paper has been launched by the Associated Manufacturers of Multi-Wall Sewn Paper Bags, an organization recently formed by the leading producers of this type of package. The reasons why this container is said to be the most efficient and the most economical are being presented to those who sell, specify and use cement and similar rock products in a series of news bulletins and through the columns of business papers which reach this field.

Modern developments in the manufacture of cement, particularly the tendency toward finer grinding and the use of special, high-early-strength cements, make the protection against premature moisture, afforded by the paper bag, more desirable than ever, it is claimed. Present-day conditions in the construction industry, it is pointed out further, have taken the Multi-Wall Sewn Paper Bag out of the "luxury class" and have made it a necessity. This is especially true of the small jobs which make up so large a part of this year's building operations. On these, it is contended, the cost of picking up, sorting, cleaning and shipping back "returnable" bags would eat up what little profits there are, without counting the losses which result from sifting through the fabric or retention of the material in the mesh of a cloth container.

Not only is this drive for greater use of paper in tune with the times in the appeal which it makes to "save money for the customer," but it is also significant of a growing tendency on the part of manufacturers in a particular field to cooperate in their promotional efforts, replacing individual endeavors by a joint campaign.

The members of the Associated Manufacturers are Arkell & Smiths, Canajoharie, N. Y.; Bates Valve Bag Corporation, New York, N. Y.; Bemis Brothers Bag Company, Peoria, Ill.; the Jaite Company, Jaite, Ohio; The Thos. Phillips Company, Akron, Ohio; the Raymond Bag Company, Middletown, Ohio; Taggart Brothers Company, Inc., New York, N. Y.; Universal Paper Bag Company, New Hope, Pa., and The Valve Bag Company, New York N. Y.

Hear Evidence in Casein Tariff

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 15, 1932.—Domestic producers of casein and members of Congress last week appeared at a hearing of the United States Tariff Commission in connection with its casein investigation urging that the tariff duty be not decreased while importers urged that the duties be adjusted to permit foreign competition. The hearing was held in connection with complaints now pending before the Commission.

Senator Howell of Nebraska, asked that the Commission allow him to examine data collected during the investigation to enable him to prepare statements relative to the casein situation. Representative Taber, of Auburn, N. Y., declared that his agricultural constituents have been adversely affected by low milk prices and that the sale of skim milk for casein manufacture would serve to offset the milk situation.

He declared that casein prices averaged 18½ cents per pound in 1921 as compared to 6 cents per pound at present and would be down to 3 cents if not for the present tariff. He said that the imported price at New York is now 1.54 cents without the duty. He stated that the annual production of casein in the United States is 40 million pounds and that the domestic supply is sufficient for the demand.

Commissioner Thomas Walker Page pointed out that domestic production fell 10 per cent during 1931, while imports declined 80 per cent. He asked if this did not indicate that the reduction was due to domestic competition rather than foreign. Mr. Taber replied that both factors were responsible.

Representative Selvig, of Crookston, Minn., appearing in behalf of the Minnesota Congressional delegation, protested against any decrease in casein duty on the ground that it would eliminate much needed income of the farmer.

Sebastian Gonzalez Sabathie, centro de la Industrial Lechara, Buenos Aires, Argentina, an agricultural economist, declared that casein production is relatively of much more importance to Argentina than to the United States. The casein output constitutes 10 per cent of milk production in Argentina while in the United States it is only 1 per cent and is virtually a by-product, he said. He declared that the abrupt decline in casein prices has been due to the American tariff and he asked that the Argentine product be not shut out of the United States market.

John D. Miller, appearing before the Commission on behalf of the National Cooperative Milk Producers' Federation and others said:

"There is a well organized movement, I call it an organized movement because I am not yet quite ready to call it a conspiracy, which seeks to make American agriculture a shock absorber for the Nation's manufacturing business by opening domestic markets to foreign farm products thus permitting the opening of foreign markets to the products of manufacturing concerns of the United States.

"This movement is particularly noticeable in relation to Canada and Argentina. Paralleled with this movement is the application which has been made to this Commission for a reduction in the tariff rates on casein."

Mr. Miller severely criticised the procedure of the Tariff Commission in refusing to direct witnesses to testify openly as to the cost of production of casein in this and in foreign countries. He pointed out that in each instance when questions were asked or evidence offered showing such cost, it was handed to the Commission privately to be kept secret, with the farmers' representative having no opportunity to inspect it.

"The issue and the only issue involved in this hearing," said Mr. Miller, "is the cost of producing casein in the United States and in the Argentine. For us to be denied all knowledge as to what the witnesses have testified to in regard to costs is to deprive the farmers of the United States of the right given them by the Tariff Act of 1930 to be present at this hearing, to produce evidence and to be heard.

"Evidence," said Mr. Miller, "before any tribunal charged with the duty of finding facts consists of evidence in chief and evidence in rebuttal. If we do not know what the evidence of our opponents is, we cannot rebut it. From this it follows that the rulings of the Commission that prevent us from having any knowledge as to what our opponents' evidence is, deprive us of the right given to the farmers of the United States by the Tariff Act of 1930 to produce evidence, to rebut the evidence of our opponents.

"The fierce light of publicity can injure no just cause, and we submit that it is the clear duty of the Commission to here and now make available to us all of the evidence that the Commission has received from whatever source that tends to show the cost of producing casein in this and in foreign countries and upon which the Commission expects to base its report to the President."

Indianapolis Demand Holds Up

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., June 13, 1932.—While the volume of paper sales in most lines continues to hold up about on a par with previous weeks, the trade is not at all optimistic for the dull summer season is approaching and volume is certain to shrink even more than it already has. At that some lines are doing well, particularly when economic conditions are considered.

Summer specialties, naturally, are coming to the front. Containers are selling more readily to the ice cream trade. Such items as paper napkins, plates, cups and other specialties are having a ready sale and it is predicted volume will be equal to that of last year. The bakery trade is heavily buying waxed paper and the volume thus far this year will be larger than it was a year ago. Rapid strides have been made in papers of this sort in Indiana during the last several months, such that it is exceptional now to see unwrapped bread of any description.

There also is a good demand for bags. One of the leading jobbers here stated Thursday he was surprised at the volume of business being done in view of conditions. Another feature of the local bag market is the volume of business being done for cash. The old cash discount is having much to do with this. Cash and carry gives the consumer some real inducement. One jobber said he had built up a good local trade with cleaners because of this very feature. The carry end of it eliminates delivery costs and the cash end a lot of bookkeeping. He said cleaning firms called for bags and other paper when their wagons happened to be in the neighborhood, thus costing them very little.

The fine paper market is not so good. Schools all over the state are ending and this eliminates a good source of demand. Stationery stores have low stocks and are buying in small quantities and report business already feeling the summer slump.

No changes are reported in the paper stock field. Prices are very low and demand from mills is not considered encouraging.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Detroit, Mich.—The Michigan Paper Tube and Can Company, recently organized with capital of $25,000, will take over and succeed to the company of same name, with local plant at 5201 Loraine avenue. William R. Harris is the principal incorporator of new company.

Neenah, Wis.—The Kimberly-Clark Corporation, Neenah, has plans for a new factory on Victoria avenue, Niagara Falls, Ont., to be occupied under lease by the Kotex Company of Canada, Ltd., 554 Queen street, Niagara Falls, Ont. It will be two-story, 115 x 180 feet, and is reported to cost over $90,000, including equipment. Bids have been asked on general contract and work will soon be placed under way.

Brooklyn, N. Y.—Minkoff & Rosenfield Brothers, Inc., has been organized with a capital of 200 shares of stock, no par value, to manufacture paper boxes and containers. It is understood that the new organization will represent a consolidation of Minkoff & Company, 270 Cooper street, manufacturer of paper boxes and containers, and Rosenfield Brothers, with local plant at 57 Thames street, manufacturer of similar products. The consolidated organization will carry out a general expansion program. Incorporators include Edward Light, 575 West 189th. street, New York, and Alvin H. Minkoff, 27 Cedar street, New York.

Fort Madison, Iowa—The Hinde & Dauch Paper Company, Sandusky, Ohio, has reopened its paper mill at Fort Madison, following curtailment for a number of weeks. A sizable working force will be employed. A. B. Thomas is now manager at the plant.

Scotch Plains, N. J.—The former Seeley paper mill at Scotch Plains, inactive for a number of years, was destroyed by fire recently. An official estimate of loss has not been announced. It is understood that the plant will not be rebuilt.

Saginaw, Mich.—Apex Paper Products Company, recently formed with a capital of $35,000, is said to be planning operation of a local plant for manufacture of paper goods, including cardboard specialties. Thomas McNally, 733 Brown street, Saginaw, is one of the heads of the new organization.

Jersey City, N. J.—The five-story paper box and container factory of the Stephen J. Leo Company, Varick and Colden streets, on site 100 x 250 feet, has been taken over by the Esembe Building and Loan Association, Jersey City, under foreclosure proceedings. The new owner proposes to place the property on the market.

La Tuque, Que.—The Brown Corporation, Quebec, Que., is continuing production at its local pulp mill, recently reopened after a shut-down for a number of months, and is giving employment to about 200 men on a four-day operating schedule.

Shawinigan Falls, Que.—Canadian Industries, Ltd., 1050 Beaver Hall Hill, Montreal, Que., which recently completed a local mill for the production of cellophane products, is said to be planning the construction of a new plant at Copper Cliff, Ont., for the extraction of sodium from mining slag secured in that district. The output will be used in different operations of the Canadian company. Plant is reported to cost over $75,000, with equipment. The company is advancing production schedule at the new cellophane mill, which is the fourth mill to be established by the organization in Canada during the past 24 months. Large output is scheduled from the Shawinigan Falls plant. E. I. du Pont de Nemours & Co., Wilmington, Del., and the Imperial Chemical Industries, Ltd., London, England, are associated with the Canadian company in the enterprise.

Port Alfred, Que.—The Consolidated Paper Corporation is continuing operations at its local mill, recently placed in service after being closed for about a year, and is giving employment to over 500 men in different departments. It is said that the mill will be active for an indefinite period, with approximate working force noted, later to be increased.

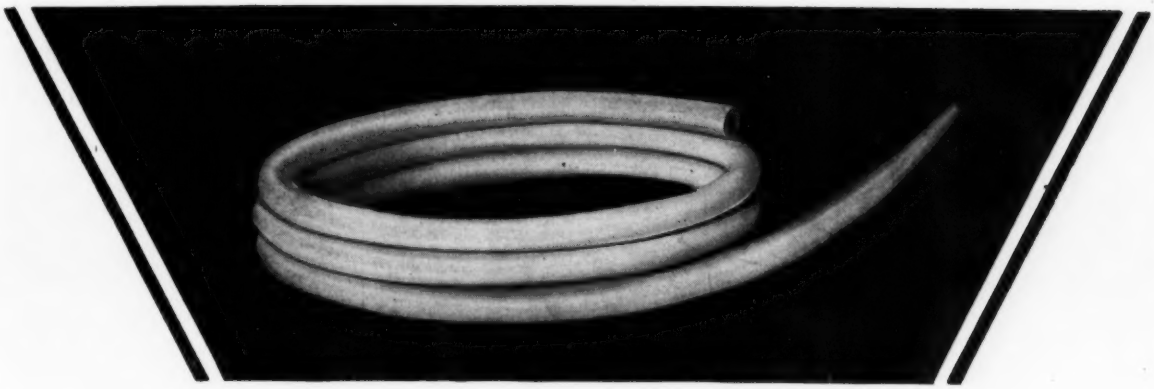
Bogalusa, La.—The Bogalusa Paper Company is installing a new lime kiln unit at its plant, and will have ready for service at an early date. The installation consists of two 110-foot rotary cylinder lime kilns, each 7½ feet in diameter and weighing about 55 tons. The units were made at the plant of the Vulcan Iron Works, Wilkes-Barre, Pa. Estimated cost of expansion and improvement program has not been announced.

Mohnton, Pa.—The Slichter Box Company, Mohnton, recently organized with a capital of $30,000, plans operation of local plant for the manufacture of paper boxes, cartons and other containers. The new company is headed by Frank W. Slichter, Shamokin, Pa., and Earle M. Slichter, Mohnton. First noted will be treasurer of company.

Portland, Ore.—The Federal Paper Company, Harrison street, is considering the rebuilding of portion of storage and distribution plant, recently destroyed by fire. An official estimate of loss has not been announced.

Kansas City, Mo.—The R. C. Can Company, 2809 14th street, manufacturer of spiral wound corrugated fiber containers and kindred products, is planning an expansion program at plant, including installation of additional equipment. Capacity of factory will be increased, with facilities for production of allied fiber container specialties. Work is reported to cost over $25,000 including equipment.

New York, N. Y.—The Wallace Paper Box Corpo-



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ration, recently organized by Wallace Ungemacher and Walter J. Jamieson, 132 Mulberry street, New York, and associates, with capital of $25,000, plans operation of local plant for manufacturer of paper boxes and containers.

Portland, Ore.—The Pacific Paper Materials Company, Tenth and Pettygrove streets, is considering early rebuilding of portion of plant, recently destroyed by fire. The unit was used for storage and distributing service. An official estimate of loss has not been announced. Fred Schulze is general manager, in charge.

New Cumberland, Pa.—The Nu-Box Corporation, manufacturer of paper and cardboard boxes and containers, etc., is running on a capacity schedule, with close to normal working quota. During the past six months the output at the plant has been doubled with installation of additional equipment and facilities.

Philadelphia, Pa.—The Cardboard Novelty Manufacturing Company, 720 South Eleventh street, recently organized with capital of $10,000, by Louis Weiner, 705 West Chelten avenue, plans operation of a local paper converting plant for the manufacture of paper and cardboard products of various kinds. Mr. Weiner will be treasurer. Other incorporators are David Simon, 4557 West Thirteenth street, and William J. Newland.

Niagara Falls, N. Y.—The Cliff Paper Company, Canal Basin, has filed change in company capitalization from $500,000 to $50,000.

Stockholm, Sweden—The Sandviken Sulphate Mill recently resumed production at its plant, following a shutdown for a few weeks, primarily for the purpose of making alterations and improvements, including machinery betterments. It is proposed to continue active production with close to normal working quota for an indefinite time. The mill is not affected by the present controversy in the wood pulp industry in Sweden.

Boston, Mass.—National Novelty Company, Inc., has been incorporated with a capital of 100 shares of common stock, no par value, to manufacture paper and cellophane specialties. George S. Ferngold is president; and Irving Goldman, 3 Nazing court, Roxbury, Boston, treasurer and representative.

Detroit, Mich.—The Michigan Paper Tube and Can Company, 5201 Loraine street, has filed notice of company dissolution under state laws.

Chicago, Ill.—The Willard Tablet Company, a Delaware corporation, has filed notice of intention of operating in Illinois, for manufacture of writing tablets and kindred paper products. Office will be at 215 West Randolph street, Chicago.

Chicago, Ill.—The Phillco Enterprise Company has been incorporated with a capital of $5500, to manufacture paper goods of various kinds, including cards and paper novelties. The incorporators are Charles E. Phillips and Peter F. Collier; principal office at 6220 Blackstone avenue. Company will be represented by William S. Stahl, 163 West Washington street, attorney.

New Companies, Etc.

Chicago, Ill.—The Service Envelope Corporation, 1234 West Chicago avenue, has been incorporated with a capital of $25,000, to manufacture envelopes and kindred paper products. William C. Harvey is the principal incorporator. The company is represented by Thompson, Tyrell & Chambers, 100 North LaSalle street, attorneys.

Harrisburg, Pa.—The McClintock Corporation has been incorporated with a nominal capital of $5,000, to manufacture paper boxes and containers, corrugated paper boxes, etc. The incorporators are George Kunkel, Paul C. Smith and H. M. Haertter, 931 North Front street. Last noted is treasurer and representative.

Los Angeles, Calif.—The Carpenter Envelope Company of California, Inc., has been incorporated with capital of $25,000, to manufacture envelopes and kindred paper products. The incorporators are I. W. Carpenter, Jr., Omaha, Neb.; P. C. and K. C. Holland, both of Los Angeles.

Chicago, Ill.—The United Paper Mill Supply Company, 1109-21 West 58th street, has been incorporated with a capital of $40,000, to deal in paper and paper products. The incorporators are Nathan Blitzstein and Joseph Kosh. Company is represented by Kargman & Kargman, 188 West Randolph street, attorneys.

New Rain-Proof Paper Umbrella

Weatherproof Utilities Corporation of 239 West 39th street, New York, is placing on the market a metal surfaced, sun-proof and rain-proof paper umbrella, which is to retail at fifteen cents. It is described as the first paper umbrella to feature the use of a detachable wooden handle.

The umbrella, which is made of 75 pound kraft paper, has eight folding cardboard ribs provided with eyelets through which the handle passes to the top center. The fact that the handle is removable, or "free" enables the entire making of the article to be done by automatic machinery.

The umbrella will be available in colors and will be sold in convenient outlets, including stores, news stands, etc.

Ripley Bowman Dead

Ripley Bowman, secretary of the Timber Conservation Board, who possessed many friends in the paper industry, passed away last Thursday, June 2, in Washington, D. C. He was buried at Arlington last Saturday.

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Henry J. Berger
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Ronald G. Macdonald
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Herbert J. Laughton
Associate Editor

Thomas J. Burke, C. A.
Editor Cost Section

Lynne M. Lamm,
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INVESTIGATING WORLD'S WOOD

An announcement of considerable interest and importance to the pulp and paper industry comes from Professor Samuel J. Record of the Yale School of Forestry. Following a conference in New Haven of representatives of the Bussey Institution and the Biological Laboratories of Harvard University, the Botanical Department of Cornell and the Forestry Department of Yale, it is stated that a systematic investigation of the woods of the entire world by the International Association of Wood Anatomists, of which Professor Record is secretary-treasurer, is now well under way.

It is a big undertaking and involves a lot of cooperative work, but Professor Record states that an enthusiastic organization with a present membership of fifty scientists in eighteen different countries under the direction of an executive council of eleven members of eight nationalities, has been built up which gives encouraging promise of carrying the work to a successful conclusion. Materials are being pooled, research problems farmed out and terms and methods are being standardized so that the results will be on a strictly comparable basis. In this way it is expected to make more and better progress in the next ten years than would be possible in fifty years of the scattered efforts of individuals, according to Professor Record.

Before now students of wood have been limited to the specimens that happened to be available or that they could personally collect. The lack of suitable materials has discouraged investigators and seriously retarded the advance of an important branch of science. Now every member of the association and his students will have at their disposal all of the wood collections at the allied institutions. As soon as he decides upon a group of woods to investigate the machinery of the association is put in motion to supply him with specimens and other assistance. Lists of the different projects are published at quarterly intervals so as to prevent unintentional duplication of effort. A student can work with the assurance that his results will not be anticipated by some unknown worker in the same field.

The largest and most comprehensive collection of woods at present is at the Yale School of Forestry and contains over 21,000 fully catalogued samples representing over 6,000 named species of about 2,000 different genera (counting all oaks as one genus, all pines as another, and so on). Cuttings large enough for scientific studies have already been made of selected groups and forwarded to scientists at several institutions in the United States, Canada, England, Holland, Germany, France, Russia, Japan, Australia, and New Zealand. Another large collection is at Buitenzorg, Java, with 15,000 samples of Dutch East Indian woods. Many of these have already been contributed to the Yale collection and a recent proposal has been made to contribute a much larger number so as to make them more readily accessible for cooperative studies sponsored by the Association. There are also large collections in the Philippines, India, Federated Malay States, as well as in European countries, and hundreds of samples have already been distributed for special research.

Comparisons of the lists of materials in the different museums has brought to light the important gaps to be filled by expeditions to the forests of little known regions. The forest services of European countries with colonial possessions are encouraging their field forces to send in all the different kinds of trees they can find and to accompany the wood samples with leaves, flowers, and fruits so that they can be accurately identified by systematic botanists. Field Museum of Natural History (Chicago) kept a collector in the Peruvian Amazon region for a year and brought out over 2000 samples of woods, all of which have been made available to the members of the International Association. The Firestone Plantations Company maintained a member of the Yale forestry staff for a year in Liberia, West Africa, so that samples of the different trees could be secured as the forest was being cleared from the site of its rubber plantations. The United Fruit Company has given generous assistance in the collection of woods on and near its holdings in Central and South America.

The Yale Forestry School is trying the experiment of providing small subventions for local collectors in tropical countries and is meeting with marked success. Over 300 timber samples have recently been received as the result of a local expedition into the high mountain range near Santa Marta, Colombia. The Lower Amazon region is being explored by Dr. Alphonso Ducke of the Botanical Garden of Rio de Janeiro, and the specimens he has already brought out are considered among the finest ever received at Yale. Dr. A. Rimbach is collecting in the interior of Ecuador, a locality almost unknown to the outside world. A good collection of woods has been made for the first time on Mt. Kinabalu in British North Borneo. The most recent expedition sponsored by Yale is that of J. H. L. Waterhouse of Australia who is collecting on the British Solomon Islands Protectorate. This undertaking

is in cooperation with the Royal Botanic Gardens, Kew, England, and has the sanction of the High Commissioner for the Western Pacific and the Resident Commissioner at Tulagi. There are in addition, many local collectors in out-of-the-way places in the tropics who collect woods as a hobby and find their reward in the recognition it brings them from the outside world. The cost of all this far-flung organization is less than the salary of one field assistant, as these collectors ask only for the facilities to carry on their explorations.

In such manner are materials being secured upon which the association members and their students can pursue their work of analyzing, classifying, testing, and describing the woods of the world. In order, however, that this work can have its greatest value it is necessary that it be done along standard lines and the results expressed in terms understood by persons of several nationalities. This requires the preparation of a series of manuals, one of which, dealing with wood descriptions, is now well under way.

The first step toward uniformity of botanical terms has been the making of a dictionary, and this is now undergoing its second revision and is in English, French, German, Dutch, Spanish, Portuguese, and Polish. This will be made the basis for a book in which every term is fully illustrated and described. Experts in all parts of the world are collaborating and far-reaching results are anticipated.

Eventually it will be possible to identify almost any piece of wood with certainty. New commercial sources of timber will be brought to light and new uses and technical properties discovered. The present systematic classification of plants will be modified and established on a broader and more substantial basis. The evolution of woody plants will be better understood and fossil remains will give up more of their secrets of an ancient earth. The whole is a task beyond the possibility of individuals, but entirely feasible through the combined efforts of many.

TAPPI Notes

The fall meeting of the Technical Association of the Pulp and Paper Industry will be held at Holyoke, Mass., September 14-16, 1932. Make reservations at the Nonatuck Hotel. There will be symposia on pulp testing and specifications, paper machine variables, paper classification and use requirements.

A report of the joint meeting of the TAPPI Fibrous Raw Materials Committee and the A. P. P. A. Pulpwood Department is available. Write to the Technical Association, 370 Lexington avenue, New York.

O. W. A. Rodowski who was chief chemist of the Southern Kraft Corporation is now with the Minnesota and Ontario Paper Company, International Falls, Minn.

Nils Sandman formerly chief chemist of the Insulite Company of Finland, is now assistant superintendent of the bleached sulphate pulp mill of the Diesen Wood Company, Pitkaranta, Finland.

A. E. Waern formerly consulting engineer for the Champion Fibre Company, Canton, N. C. and Nekoosa-Edwards Paper Company, Port Edwards, Wis., is now at the mill of the Filer Fiber Company, Filer City, Michigan.

F. G. Rawling formerly research chemist of the Mead Corporation, Chillicothe, Ohio, is now with the West Virginia Pulp and Paper Company of Luke, Md.

D. S. Davis, formerly staff mathematician for the Mead Corporation, is offering a consulting service in industrial mathematics. The new company known as Dale S. Davis' Associates is located at East Northfield, Mass., specializes in the preparation of alignment charts and empirical equations for the paper industry.

The employment service department of the Technical Association should be informed concerning any job vacancy to be filled. Please help make the association the clearing house of the industry for jobs for engineers, chemists, superintendents, and mill managers. No fees are charged for employment service.

The Canadian Technical Section meets at St. Catherines, Ontario, June 23 and 24.

The Bureau of Standards has just issued Research Paper 407, entitled, "Deteriorative Effect of Sulphur Dioxide Upon Paper in an Atmosphere of Constant Humidity and Temperature," by Arthur E. Kimberly. Copies are obtainable at ten cents from the Superintendent of Documents, Washington, D. C.

New TAPPI Members

The Technical Association of the Pulp and Paper Industry announce the following elections to membership.

Charles E. Fawkes, secretary of the Pyroxylin Products Inc., Chicago, makers of lacquers for papers, etc. is a 1922 graduate of the University of Wisconsin and was formerly employed by the Eastman Kodak Company, Miner Laboratories and Cutler-Hammer Manufacturing Company.

Adalbert S. Gerry, chemist in the Pulp Division of the Weyerhaeuser Timber Company, Longview, Wash., was formerly employed in the laboratory of S. D. Warren Company, Cumberland Mills, Maine.

Chester H. Pape, president of the Independent Foundry Company and the Peerless Pattern Works, Portland, Ore., was formerly employed by the Electric Foundry Company and the Willamette Iron and Steel Company.

Rex Vincent, chemist of the Coated Board Division of the Container Corporation of America, Chicago, is a 1931 graduate of the University of Cincinnati. He was formerly employed by the Dixon Board Mill, Carthage, Ind., and the insulating board mill of the Chicago Mill and Lumber Company, Greenville, Miss.

O. W. A. Rodowski, chief chemist of the Minnesota & Ontario Paper Company, International Falls, Minn., has been transferred from associate to active membership in the Technical Association.

Everett S. Worth, chemist of the Paterson Parchment Paper Company, Bristol, Pa., is a 1928 graduate of Brown University, and was formerly employed as a chemist by the Brown Company, Berlin, N. H.

Herbert E. Karberg, sulphite superintendent of the Alliance Paper Mills, Merritton, Ontario, has been transferred from associate to active membership in TAPPI.

Awards for Government Paper

WASHINGTON, D. C., June 15, 1932.—The Mathers-Lamm Paper Company has been awarded the contract for furnishing the Government Printing Office with 5,000 pounds (5,000 sheets) of 26 x 32 lined chipboard at 1.6975 cents per pound, bids for which were received on June 1.

The same company will also furnish 12,600 sheets of 20 x 25 yellow gummed paper at 7.15 cents per pound, bids for which were received on May 27.

The R. P. Andrews Paper Company will furnish 3,000 pounds of 9 x 12 manila offset tissue paper at $10.80 per M sheets, bids for which were received on May 25.

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

The National Research Council, 21st and B Street, Washington, D. C., through Dr. Clarence J. West, extends the courtesy of its photostat service to members of the Technical Association of the Pulp and Paper Industry. Owing to a limitation of personnel and time, this service cannot be extended to non-members.

The charge for the photostat service is: 9 x 1 inches—18 cents per page, 18 x 11 inches—35 cents per page, 22 x 18 inches—70 cents per page, minimum charge, 50 cents.

Payment should be made upon receipt of invoice.

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Paper Specialties

Method and Apparatus for Producing Roofing. Fred Jaeger assignor to The Patent and Licensing Corp. U. S. pat. 1,834,950, (Dec. 8, 1931.)—Finely divided mineral matter is blown on to asphalt-coated roofing felt while the coating is still soft and plastic, so that the mineral matter penetrates through the thickness of the coating. The sheet is then surfaced with mineral granular material as usual.—A.P.-C.

Method of and Apparatus for Surfacing Roofing. Frank H. Gilchrist assignor to The Patent and Licensing Corp. U. S. pat. 1,834,917, (Dec. 1, 1931).—In order to obtain rapid and uniform mixing of differently colored mineral grits to be applied as surfacing to impregnated roofing felt, crushed mineral of the desired colors is fed continuously to and through a relatively small passageway in a mixing device, and the intermixture is effected by a relatively strong air blast supplied by nozzles through suitable openings in the walls of the mixing hopper. Provision is made for causing the mineral delivered to the mixing chamber to spread into thin curtain-like films to facilitate admixture of the constituents.—A.P.-C.

Apparatus for Saturated Sheet Material. David Low assignor to The Patent and Licensing Corp. U. S. pat. 1,830,741, (Nov. 3, 1931).—In order to prevent saturated roofing from sticking to the bars of the fetsoon drier, the portion of the bars which come in contact with the saturated felt is lubricated with a material such as soft crude wax, fuel or machine oil, etc., having a lower melting point and viscosity than that of the saturant for the roofing base. This is obtained by making the bars pass successively through cups, the bottom of which is provided with a piece of felt saturated with the lubricant.—A.P.-C.

Machine for Winding Toilet Paper Rolls. William H. Cannard and Alden G. Lewis. U. S. pat. 1,819,406, (Aug. 18, 1931),—The reel is provided with four core-holding members, or spindles, each of which passes successively through the steps comprising a complete cycle of operation, as follows: while cores are being applied to one spindle, the cores on the preceding spindle are brought into contact with an adhesive applying roll, the paper is being wound upon the cores on the next preceding spindle, and the wound rolls on the fourth spindle are being stripped therefrom. All operations are performed automatically, but are at all times within control of the operator.—A.P.-C.

Apparatus for Winding Crepe Paper into Soft Rolls. Hjalmar Anderson. U. S. pat. 1,823,581, (Sept. 15, 1932).—According to the invention endless belt members are used for effecting the rolling of the paper, such members forming between them a wedge-shaped working chamber; but instead of running over the same drum, they are run over separate and independent drums and form an acute angle at the working chamber. One chamber is at such an inclination to the horizontal that the completed rolls, at the displacement of one of the belts fall down by gravity through the open end of the working chamber.—A.P.-C.

Method and Machine for Making Molded Pulp Containers. Eugene L. Perry assignor to Wilbarton Ware, Inc. U. S. pat. 1,822,058, (Sept. 8, 1931).—The pulp is flowed on to a rotating frustro-conical mold, the inside of which is connected to the suction side of a vacuum pump, until the article has been built up to the required thickness. During formation a wire-covered, frustro-conical pressure roll, connected to the exhaust or pressure side of the pump, acts on the article. When the pulp supply has been shut off, a solid pressure roll is made to act on the article to loosen it from the mold.—A.P.-C.

Machine for Making Pulp Strips. John S. Little assignor to Western Electric Co. U. S. pat. 1,831,018, (Nov. 10, 1931).—In cylinder molds used for applying pulp ribbons to cores, instead of using bands fixed to the covering of the cylinder mold to separate the several pulp ribbons, use is made of a number of narrow, endless, rubber belts passing around the portion of the cylinder that is immersed in the stock.—A.P.-C.

Manufacture of Transparent Sheet Material. S. D. Warren

and W. M. Driesen. Brit. pat. 344,471 (Oct. 29, 1929).—A paper web composed of transparent fibers is saturated with a solution of a cellulosic film material (nitrocellulose) in a mixture of a volatile solvent (alcohol and volatile esters) and a stable solvent (lanolin, amyl phthalate), and the volatile solvent is removed by evaporation.—A. P.-C.

Manufacture of Waterproof Paper. A. Nathansohn. Brit. pat. 356,277 (June 6, 1930).—Anhydrides, acid chlorides, or other esterification-inducing derivatives of organic acids of high molecular weight, such as stearic anhydride, are used as waterproofing agents. They may be applied as emulsions or as a 0.1 to 5 per cent solution. The treated paper remains waterproof after extraction with volatile solvents.—A. P.-C.

Rendering Paper and Cardboard Impermeable. Papeteries Navarre. Brit pat. 357,039 (Jan. 7, 1931).—The material is impregnated with an alkaline caseinate solution containing a high proportion, *e.g.*, 5 per cent, of formaldehyde and a volatile substance capable of retarding coagulation, such as ammonia. After exposure to air to allow evaporation of the ammonia and coagulation of the caseinate, the material is dried and heated to 120 deg. C. An after-treatment with aqueous aluminum acetate (density 1.035) containing about 10 per cent formaldehyde may be given.—A. P.-C.

Manufacture of Hard Paper. International General Electric Co., Inc., assignees of Allgemeine Elektricitäts-Gesellschaft. Brit. pat. 346,411 (Nov. 6, 1929).—Condensation products of polyhydric phenols (such as resorcinol) with aldehydes are used as binders in the manufacture of ply fabrics or boards. The artificial resins produced are hardened by heating (about 1 min. at 160 deg. C.). Up to 50 per cent of the polyhydric phenol may be replaced by monohydric phenols without unduly prolonging the time of hardening.—A. P.-C.

Manufacture of Pasteboard Packing Material from Wood Pulp. K. Kürschner. Brit. pat. 348,791, March 24, 1930.—Long-fibered cellulosic material such as wood pulp, after or during a preliminary or final molding process forming part of treatment ordinarily used in the manufacture of paper, is impregnated with a dissolved compound of cellulose, which is subsequently transformed into hydrocellulose, either immediately after the impregnation or after the completion of the molding process.—A. P.-C.

Production of Impregnated Paper. Calender's Cable and Construction Co., Ltd., and H. Hill. Brit. pat. 352,533 (April 10, 1930).—The impregnation of paper in reel form is facilitated by embossing nodules in the paper before reeling, so as to keep the layers slightly apart.—A. P.-C.

Manufacture of Cigaret Paper. B. Seferiadis and S. C. Patents, Ltd. Brit. pat. 352,541 (April 11, 1930).—The resinols, etc., used in the prior patent (Brit. 325,125) are obtainable in varying quantities from any gum or gum resin, natural or synthetic, by maceration with acetone, ethanol, liquid hydrocarbons, or mixtures thereof. In making the paper it is advantageous to add 1.5 to 2 per cent of ethanol to the pulp before running on the machine.—A. P.-C.

Manufacture of Vulcanized Fiber. A Carpmael assignee of I. G. Farbenindustrie Aktiengesellschaft. Brit. pat. 343,089 (Nov. 13, 1929).—Paper is worked at 60 deg. C. with a solution of zinc chloride (specific gravity 1.98 at 20 deg. C.), to which another salt (calcium or ammonium chloride) has been added.—A. P.-C.

Making Articles of Pulp and Drying Same. G. E. Coblens and A. W. Morris. Brit. pat. 344,547 (Dec. 16, 1929).—The wet pulp is molded into the required shape between mesh dies and subjected to high pressure to remove as much water as possible and establish intimate contact between the pulp and the dies. The pressure is then released and a current of electricity (preferably alternating current at 110 volts) is passed through the moist pulp (the two mesh dies serving as termnials) to complete the drying by electric-endosmosis.—A. P.-C.

Manufacture of Fibrous Articles. N. E. Brookes assignee of Bemis Industries, Inc. Brit. pat. 352,275 (July 23, 1930).—Pulp is introduced through a moving perforated distributing duct into a form of the desired shape having a perforated wall, which is subjected to a differential pressure to cause the deposition of the fibers thereon and removal of the liquid. The article is afterwards partly dried by a current of air introduced through the duct.—A. P.-C.

Asphalt Papers Made by New Processes. Fritz Hover. Kunststoffe 22:11-13 (1932); C. A. 26:2051.—A discussion is given of the advantages of the emulsified asphalt process, which is not used as widely in Germany as in the United States.—C. J. W.

Paint for Paper. Tyoiti Tanaka. Japan. pat. 91,361 (May 11, 1931); C. A. 26:1787.—The paint is prepared from casein, borax, acetic acid and a suitable dye.—C. J. W.

Safety Paper. Yozi Hukunaga. Japan. pat. 91,458 (May 18, 1931); C. A. 26:1787.—Addition to 77, 962. In the manufacture of ordinary paper fibers water containing 3-5 per cent manganese chloride is used or 1 per cent solution of manganese chloride is painted on the manufactured paper.—C. J. W.

Waterproof Cloth or Paper. Syumei Kobayasi. Japan. pat. 91, 496 (May 21, 1931); C. A. 26:1805.—Copper soaps obtained from glycerides of highly unsaturated acids are dissolved in naphtha, in which vegetable wax, linseed oil and solid paraffin are dissolved. On passing through the warm solution, cloth or paper is made waterproof.—C. J. W.

Colored Paper. Soc. Anon. pour l'ind chim. a Basle. Swiss patent 147,349 (Jan. 28, 1930); C. A. 26:2319.—Colored paper, fast to water, is prepared by treating the pulp with aqueous soluble dyes and partially acylated diamines. Thus, pulp colored with benzyl green B is treated with the acetate of oleyldiethylethylenediamine.—C. J. W.

Comparison of the Permeability to Water and Water Vapor of Varios Packing Materials. R. Cohen. Chem. Weekblad. 28:159-162 (1931); C. A. 26:1779.—The relative permeabilities (referred to imitation parchment as 100 per cent) to water vapor were (a completely esterified product) 64, cellophane 101, impermeable cellophane 67 and duratex 53 per cent at 40-50°; 66, 114, 77 and 76 per cent, respectively, at 25-30°; 40, 90, —, and 49 per cent, respectively, at 10-15°. The permeabilities to water for triacel, cellophane, duratex and parchment were 15, 116, 30 and 100 per cent, respectively. Triacel absorbs practically no water, while dried cellophane absorbs almost one-third of its weight after five days. The electrical potential for triacel, cellophane and duratex was found to be of the order of 300 kilovolts per centimeter. Cellophane has condutcing spots in it; the properties of triacel make it valuable as insulation material.—C. J. W.

Raw Materials

Wood Chemistry. VI Proximate Composition of Two New Pulp Woods. Y. Uyeda and H. Shozi. J. Cellulose Inst. (Tokyo) 7, 16-17 (1931).—The woods "Doronoki" (*Populus Maximowiczii*) and "Ezoyanagi" (*Salix rorido*), which may be of use in making paper pulp, have the following compositions, respectively: loss on drying 16.33, 10.74 per cent; benzene extract 0.96, 1.48 per cent; alcohol extract 1.04, 1.78 per cent; cellulose 53.79, 55.07 per cent; lignin 21.05, 27.44 per cent; soluble pentosans 4.01, 2.62 per cent; galactans 0, 0.52 per cent; ash 1.48, 0.87 per cent; pentosans 16.47, 13.74 per cent. Their cellulose and lignin contents are similar to those of other pulpwoods used industrially, but they differ from the latter in their deficiency in mannans.—A. P.-C.

Chemical Researches on Cellulose Materials. I. Bast Fiber of "Kayu Baru." M. Shikata and M. Watanabe. J. Celluose Inst. (Tokyo) 7, 261-264 (1931).—An easily bleachable pulp is best obtained by digestion for 3 hours at 160 deg. C. with 25 per cent caustic soda on the weight of dry material. The digestion is easier than for loblolly pine or fir wood, but more difficult than for flax straw or cornstalk. The fiber of the pulp is pure white, of silky luster, is about 3 mm. long, and can be used as a substitute for wood pulp. Results of analysis of the digested pulp are given.—A. P.-C.

Chemical Researches on Cellulose Materials. II. Bast Fiber of "Kayu Selemoh." M. Shikata and Y. Watanabe. J. Cellulose Inst. (Tokyo) 7, 265-266 (1931).—The fiber of Kayu Selemoh is rough and of a greyish color. It is easily digested by the caustic soda process, but, compared with Kayu Baru, gives a higher yield of difficultly bleachable pulp. The bleached pulp is pure white and can be used for making paper.—A. P.-C.

Cleansing of Rags, Fibers and Like Cellulose Materials and Removal Thereform of Rubber, Gutta-Percha, Rosin, Oils, Fats, Waxes, etc. J. Knaggs, J. Eastman and Portals, Ltd. Brit. pat. 364,423 (March 10, 1931).—The material is extracted with a suitable volatile solvent, *e.g.*, benzene, solvent naphtha, benzene-carbon tetrachloride mixture, benzene-trichloroethylene mixture, etc.—A. P.-C.

Inhibiting Natural Fermentation of Raw Bagasse Fibers. Treadway B. Munroe and Elbert C. Lathrop assignor to The Celotex Co. U. S. pat. 1,833,493 (Nov. 24, 1931).—There is distributed in a mass of bagasse (which may be intended for pulp manufacture) a quantity of a disinfecting compound such as boric acid in the proportion of about 25 lb. per ton of bone-dry fiber; the mass is formed into a bale, and the concentration of the disinfectant within the bale is then increased by decrease of its moisture content, as by evaporation of moisture.—A. P.-C.

De-Inking Printed Waste Papers. Minnie E. Kinyon and Brice W. Kinyon. U. S. pat. 1,826,179 (Oct. 6, 1931).—The paper is subjected to the action of a solution of naphtha soap in soft water by which the ink is loosened from the paper and rendered removable from the resulting paper pulp by simple filtration, the carbon particles from the ink passing through with the filtrate.—A. P.-C.

De-Inking Waste Paper. Ko. Watanabe. U. S. pats. 1,833,804 and 1,833,805 (Nov. 24, 1931).—No. *1,338,804*—An emulsion of turpentine oil is prepared with good solvent properties for printing ink and dry printing ink, by the use of soap solution as a dispersing medium, and this emulsion is then mixed with old printed paper previously treated with alkali, and de-inking of the old paper is effected by its action. *No. 1,833,805* relates to a similar process in which an emulsion is used which is prepared from an oily material such as "tetralin" or "decalin," with good solvent properties for printing ink and dry printing ink.—A. P.-C.

De-Inking Waste Paper. Naoshige Osawa assignor to Ko. Watanabe. U. S. pat. 1,833,852 (Nov. 24, 1931).—An emulsion is prepared from camphor oil, which is a good solvent for printing ink and dry printing ink, by the use of a soap solution as dispersion medium, and this emulsion is mixed with old printed paper previously treated with an alkali to effect de-inking.—A. P.-C.

Utilization of the By-Products of the Cotton Industry in Middle Asia. A. P. Zakoshchikov, V. T. Ivanova, G. A. Korzheniovskii and A. M. Kurennova. Khlopkovuyu Nezavisimost Nos. 6-7:97-112 (1931); C. A. 26:2323.—The authors discuss the possibilities of utilizing the various by-products in the cotton industry, such as the bolls, stems, boll residues, leaves and lint, for cattle feed, cellulose manufacture, extraction of tannin, preparation of lignin, etc. Chemical analyses of the various parts of the cotton plant and the byproducts are given.—C. J. W.

Cellulose

True Specific Gravity of Ramie Cellulose. U. Yoshida and B. Takei. J. Cellulose Inst. (Tokyo) 7, 255-260 (1931).—Determination of the specific gravity of samples of ramie after prolonged heating and evacuation of the glass tubes containing them gives higher values than several previously recorded. This is considered due to the fact that in the former cases the material contained gas and moisture in its inner structure. The time of evacuation of the tubes is shortened by raising the temperature, but the cellulose decomposers above 130 deg. C. Mean values obtained are: retted fiber 1.622,, purified ramie 1.614, mercerized 1.610.—A. P.-C.

Cellulose. II. Kaoliang Cellulose. S. Komatsu and M. Shimada. J. Soc. Chem. Ind. Japan 34 Suppl. Binding, 474-475 (1931).—Results of the analysis of chemical pulps obtained from the culms and sheaths of Manchurian Kaoliang by the Cross and Bevan method, and with and without pretreatment of the material with water at 180 deg. C. indicate that during this pretreatment alpha-cellulose is converted into beta-cellulose.—A. P.-C.

Cellulose. III. Rice-Straw Cellulose. S. Komatsu. J. Soc. Chem. Ind. Japan 34 Suppl. Binding, 474-476 (1931).—The highest yield of cellulose (37 per cent), with an ash content of 2.2 per cent, furfuraldehyde yield 6.2 per cent and copper number 0.28, is obtained from rice straw by treatment with 3 per cent sulphuric acid; superheated water gives the lowest yield (32 per cent) and 7 per cent aqueous caustic soda an intermediate value (35 per cent) and whilst the respective ash contents, furfural yields and copper numbers are 7.1, 1.7 per cent; 3.5, 7.0 per cent; 0.23, 0.14. In all cases the purification with the reagent stated was followed by treatment of the pulp with aqueous chlorine. The alpha-cellulose obtained from rice straw is similar in properties to that from wood and ramie.—A. P.-C.

Some Aspects of the Chemistry of Cellulose and Other Polysaccharides. Karl Freudenberg. J. Soc. Chem. Ind. 50, 287T-294T (Aug. 7, 1931).—A critical resume of the recent work on the constitution of cellulose and starch, emphasizing the kinematics of polysaccharide hydrolysis studied by Werner Kuhn, and other investigations carried out at Heidelberg. The author compiles evidence that cellulose consists of a homogeneous long chain, and rejects Pringsheim's views on the size of the starch molecule, and points out erroneous results obtained by using various methods for determination of molecular weights of polysaccharides (especially the freezing-point method).—A. P.-C.

Characterization of Cellulose Preparations by Means of Differences in Solubility. I Sakurada. J. Soc. Chem. Ind. Japan 34 Suppl. Binding, 426-427 (1931).—The solubility of natural cellulose fibers in cuprammonium depends on the structure of the fiber and on the intermixed membrane elements that are removed by purification. Determination of the concentration of copper in the cuprammonium solution necessary for dissolution of a certain amount of cellulose enables characteristic solubility curves for the different kinds of cellulose to be obtained, thus affording a means of distinguishing between them.—A. P.-C.

Action of Caustic Soda on Celluose. S. M. Neale. J. Soc. Chem. Ind. 50, 177T-182T (May 22, 1931).—Recent theoretical developments are summarized and special attention is devoted to the characteristic properties of mercerized cellulose. This material merely exhibits in greater degree the chemical properties of the original cellulose and must be clearly distinguished from cellulose modified by oxidation or acid attack, which exhibits new chemical properties. Various methods may be used for estimating the "activation" of cellulose which persists after swelling.—A. P.-C.

Mechanical Process

Grinding Cellulosic Materials. Herbert Langwell assignor to Commercial Solvents Corp. U. S. pat. 1,823,691 (Sept. 15, 1931).—Material such as corn cobs is heated sufficiently to expel moisture, but without substantial charring, and then immediately ground before substantial cooling takes place.—A. P.-C.

Device for the Continuous Disintegration of Materials Containing Cellulose. Werner Humm. Swiss pat. 146,874 (Jan. 7, 1930); C. A. 26:2318.—The material containing cellulose and the disintegrating liquid are fed into a long vertical tube leading to a reaction vessel, the tube being sufficiently long to set up pressure in the vessel.—C. J. W.

Masonite Method for the Production of Paper Pulp. Folke Johannson. Industritidning Norden 58:4-5 (1930); C. A. 26:1776.—A review of the process developed and employed by the Mason Fiber Co., Laurel, Miss., which has recently been introduced into a Swedish pulp mill.—C. J. W.

Alkaline Processes

Process for Pulping Cornstalks. Cornstalk Products Co., Inc.,

assignees of E. R. Darling. Brit. pats. 343,115 and 343,429 (Oct.15, 1929)—*No. 343,115*—After comminuting and washing, the plant material is softened by heating with a solution containing 1 per cent of sodium hydroxide and 0.1 to 1 per cent of sodium sulphite at a temperature corresponding to a steam pressure of 10 lb. The entire mass, including the plant material and softening solution, is afterwards pumped into a digester and cooked at 10 to 30 lb. pressure. *No. 343,429*—Cellulosic agricultural waste, particularly cornstalks, is digested with 1 per cent caustic soda, fresh concentrated soda being added periodically to maintain the digesting solution at its initial concentration throughout the operation.—A. P.-C.

Manufacture of Sulphate and Soda Pulp. A. F. Zennström. Brit. pat. 350,491 (March 6, 1930).—Resinous wood shavings are treated for the recovery of the by-products in such a manner that volatilization of the turpentine by steam and extraction of the resin by alkali are carried out in different zones of the same digester; the hot liquor saturated with resin soap is sprayed into an equivalent quantity of acid vapor or mist, and is afterwards treated with turpentine vapor or mist, the mixture being condensed rapidly and the solution of resin in turpentine decanted from the liquor and lignin. The bleached shavings are washed and cooked by the sulphate or soda process.—A. P.-C.

Production of Cellulose from Fibrous Vegetable Material. O. C. Strecker, G. S. Strecker and O. H. Strecker. Brit. pat. 354,462 (June 7, 1930).—An improvement on the phenoxide process (Brit. pat. 284,846, Jan. 13, 1927). Hot liquor containing 5 to 6 per cent caustic soda is introduced in batches simultaneously at the top and bottom of the digester. After holding the temperature at 110 deg. to 125 deg. C. for about 2 hours, heating is discontinued, about 25 per cent of the liquor is removed and replaced over a period of 0.5 to 1 hour by an equal volume of caustic soda solution of such concentration as to raise the proportion of alkali in the digester liquor to 6 to 6.5 per cent. The temperature is raised to 170 deg to 175 deg. C. and digestion continued for 3 hours. The liquor should at all times contain at least 50 per cent excess of phenolic substances. Hydrocarbons formed during digestion are distilled off during or after the cook. Surplus spent liquor is treated with carbon dioxide (optionally after boiling with slacked lime to remove colloidal impurities), and the precipitated phenolic substances are used either for preparing fresh cooking liquor or as fertilizers.—A. P.-C.

Manufacture of Cellulosic Material. S. P. Cane, H. Heather, and L. G. S. Herbs. Brit. pat. 346,813 (Jan. 3, 1930).—After soaking felled trees of *Broussonetia papyrifera* in water or dilute alkali at room temperature or above, the bark and wood are separated by hand or machinery and each is separately converted into pulp by digestion with caustic soda in the usual manner. The waste liquor from the digestion is used for the first treatment of a fresh batch of trees.—A. P.-C.

Digestion of Raw Cellulosic Materials for Production of Paper Pulp. J. Bertram and Son, Ltd., J. N. Bertram and F. W. Gray. Brit. pat. 361,578 (Nov. 5, 1930).—The crushed material is first cooked with dilute aqueous caustic soda under steam pressure of 20 lb. per sq. in. to remove starchy matter and pectose, thus rendering it absorbent. After draining off the liquor, the material in the digester is exposed to a vacuum, treated with hot water which is subsequently drained off, against exposed to a vacuum, and 12 to 18 per cent caustic soda or sodium sulphate is added and allowed to soak into the material, the excess being removed at atmospheric pressure. The second stage of the cooking is then carried out by means of steam at 40 to 100 lb. per sq. in.—A. P.-C.

Continuous Pulping Process. Mead Research Engineering Co. assignee of John Traquair. Brit. pat. 347,096 (Dec. 7, 1929).—Straw, bamboo, or similar cellulosic material is steeped for about 30 min. in a large excess of a 1 to 6 per cent caustic soda solution at about 90 deg. C., squeezed until it contains 3 to 4 parts of liquor per part of raw material, and digested, without further addition of treating liquor, for 30 min. at 170 to 190 deg. C. The digester is heated by direct steam and the time taken to reach the cooking temperature should be about 30 min. The resulting pulp is washed and chlorinated by the processes of Brit. pats. 339,333, 339,334 and 339,599. The process is continuous.—A. P.-C.

Treatment of Ligneous Vegetable Materials. K. G. Bergström and A. F. Zennström. Brit. pat. 357,329 (July 29, 1930).—Before digestion by ordinary processes, the raw material, *e.g.*, wood, is treated for 6 to 24 hours at 15 to 20 deg. C. with aqueous caustic soda or sodium carbonate (density 1.007 to 1.014) to remove acetic acid, which latter is recovered. Woods rich in turpentine and resin are further treated first with steam to separate the turpentine, and then with a hot alkaline liquor, *e.g.*, the acetate liquor previously obtained (with addition of a further quantity of alkali), to remove resins.—A. P.-C.

Working up Materials Containing Lignin and Cellulose. O. A. Müller. Brit. pat. 340,164 (Feb. 10, 1930).—Undesired lignin is removed from a mixture with cellulose by treatment with chlorine and then with an organic solvent, such as alcohol, which is miscible with water and contains a mineral acid. Chlorolignin may be recovered from the extract by dilution with water or by addition of caustic alkali. Other products, which may be tanning agents, often remain in the liquid and can be obtained by removal of the solvent or addition of an alkaline-earth hydroxide.—A. P.-C.

Production of High-Grade Cellulose from Soiled and Disinteregated Vegetable Fibers, Particularly from Cotton Wastes Such as Linters, Hull Fiber and Spinning-Mill Wastes. H. Kammerl. Brit. pat. 347,444 (April 1, 1930).—The dried material is beaten, mixed with water, and run through a sieveless centrifuge, whereby the bulk of the impurities are removed; the pectins, waxes, and fats are then dissolved out by a hot solution of 1 per cent potassium soap plus 1 per cent caustic soda (bucking solution).—A. P.-C.

Cellulose and Other Products from Sugar-Cane Sprouts, Refuse and Burnt and Frozen Cane. Erich J. Franck. U. S. pat. 1,832,375 (Nov. 17, 1931).—The raw material after treatment with a chemical such as calcium sulphide is further treated with a different chemical which in combination with that used in the first treatment develops gases such as hydrogen sulphide only slightly soluble in the medium in which the treatment is carried out.—A.P.-C.

Production of Cellulose from Resinous or Balsamic Woods. Karl G. Bergström and Arthur F. Zennström. U. S. pat. 1,-824,701 (Sept. 22, 1931).—Wood such as fir chips is treated with a weak alkaline solution, such as caustic soda, at room temperature, and also with hot turpentine and will steam to obtain a product which is suitable for further treatment by a usual digestion process.—A.P.-C.

Method of Producing Puffed Pulp. Joseph E. Plumstead assignor to Jessup and Moore Paper Co. U. S. pat. 1,830,,131 (Nov. 3, 1931).—A method is provided for utilizing the caustic alkali solution of a soda-pulp mill in producing puffed pulp, including the steps of supplying to an impregnating kneader for the pulp a portion of the strong caustic solution from the first causticizing pan, the other portion passing to the supply of caustic alkali solution for cooking the wood pulp, conveying the puffed pulp and caustic from the kneader to an agitating tank, conveying a second caustic liquor from a second causticizing pan to the agitator tank, conveying a portion of a third and fourth liquor from a third causticiing pan and from a lime filler to the agitator tank, another portion of the third and fourth liquors passing to the second causticizing pan, conveying the puffed purified and agitated pulp to a dehydrator and conveying the caustic solution from the dehydrator to the pul-cooking supply. —A.P.-C.

Recovery of Chemicals from Digester Liquor. Henry L. Brown. U. S. pat. 1,828,279 (Oct. 20, 1931).—Foam is separated from black liquor and chemicals are separately recovered from the foam.—A.P.-C.

The Volumetric Composition Of Paper*

IV. Composition of the Air Fraction; Improved Apparatus and Method for Determining Porosity

By R. H. Doughty, C. O. Seborg and P. K. Baird[1]

SYNOPSIS

An easily operated porosity tester of the differential pressure-drop type is described; the technic of the test and the units of expression are discussed.

The porosity of paper toward air may be expressed in terms of (1) air transmission, (2) equivalent pore radius, or (3) pore fraction. Form (3) involves arbitrary assumptions as to the shape and size of the transmitting openings. Porosity is found experimentally to vary with applied pressure in such a way that a correction for turbulent flow must be applied; this variation is important with sheets of low solid fraction, so that the pressure under which the material is to be tested or used may have to be taken into consideration.

INTRODUCTION

The purpose of the present article is to describe a newly developed porosity testing instrument of the differential pressure-drop type, of convenient construction, and to discuss some of the factors in its operation. Detailed data as to the effect of variables in material, fiber processing, and papermaking upon sheet porosity will be presented in later articles.

The porosity or permeability to fluids of a sheet of paper is defined as its capacity to permit the passage of gases or liquids under pressure. Porosity, which is often a very important property, must be controlled adequately if the sheet is to meet its use requirements with any degree of satisfaction. Thus bag papers must be quite porous toward air, while cigarette papers should have a lower although still definite porosity.

Further, porosity is important in more matters than merely air resistance. The dielectric strength of both unimpregnated and impregnated insulating paper increases to a constant value as porosity decreases,[2] while the ease of impregnation with insulating compound decreases. For electrical insulation, a compromise value of porosity must be obtained in manufacture to meet the requirements of conversion and use.

According to Abrams and Chilson[3] there is no relation between the porosity of a sheet and its transmission of water vapor. Porosity may bear some relation to penetration by liquids and hence to grease resistance and to writing and printing qualities. A few published results of Hall[4] suggest that porosity might be used to give an empirical connection between the initial strength test and the maximum strength development characteristics of a pulp. A regular relation between the freeness of a pulp and the porosity of the finished sheet has been noted by several investigators.[5]

The examples cited indicate that porosity is a paper property of general importance. This indication is strengthened by the number of methods for measuring this property that have been devised from time to time. These methods have produced data that unfortunately have been recorded in various units, not all of which can be readily interconverted. The first step in the detailed study of porosity as a paper property, therefore, is to select a method of measurement and a system of expressing the results.

After a careful survey of available information, Baird and Hrubesky[6] decided that the differential pressure-drop method, on which the Emanueli and some other tests are based, combined ease and flexibility of operation with scientific accuracy to a more acceptable degree than did any other method. They therefore adopted this method for analysis of the air fraction, which is a step in the complete determination of the volumetric composition of papers.

Apparatus and Manipulation

The apparatus used in the present study was built from an old hand-operated Mullen tester. The construction is shown in Plate 1. The cylinder of the tester is filled with lead, through which a ¼-inch air passage is drilled, thus reducing the volume of dead space in the apparatus. The connections are of small-bore copper tubing, fastened to the glass parts with short sections of heavy-wall rubber tubing; the joints are made tight with vacuum wax. The capillary tube *c* can be readily changed for other tubes of different bore, an important feature when testing sheets of widely varying porosities. The balancing tank *b* insures that a reasonably constant pressure drop will be maintained in the system by the vacuum pump used. The water manometer readings are made on suitably placed millimeter scales.

One possible refinement of this machine would be to use single-reading manometers. Another would be to replace the Mullen orifice of 7.55 square centimeters by one of 1 square centimeter or 1 square inch area.

The operation of the instrument consists in clamping a sheet in place, inserting a suitable standard capillary tube, and applying a vacuum. When the manometers become steady they are read, and from these readings and the known dimensions of the tube the porosity of the sheet is calculated by methods that will be described. The tube should always be so selected that the pressure-drop ratio between the tube and the sheet will be less than unity, purely as a matter of convenience in calculation.

In the work here reported, the apparatus was set up in a room averaging 65 per cent in relative humidity and 72 deg. F. in temperature. A suitable seal and connection placed on the orifice plate over the sample sheet, however, would permit application of air of any desired relative humidity, or other gases. Thus the internal swelling and shrinkage of the sheet under varying relative humidity could be studied.

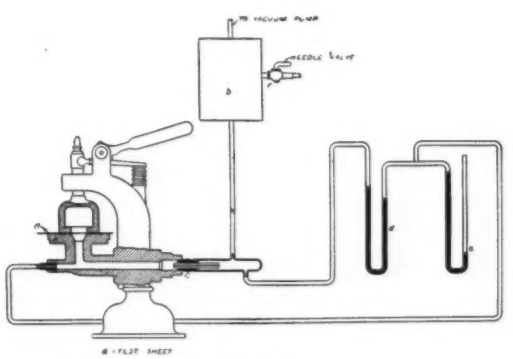

PLATE 1

A—Test Sheet. B—Vacuum Reserve Tank. C—Calibrated Capillary. D—Manometer Showing Pressure Drop Across the Capillary. E—Manometer Showing Pressure Drop Across the Sheet.

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* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 15-18, 1932.
Contribution of the TAPPI Research and Development Division.

[1] Members TAPPI, assistant engineer, junior chemist and senior chemist, respectively, Forest Products Laboratory, maintained at Madison, Wis., in cooperation with the University of Wisconsin.

[2] Emanueli, L. Paper Trade J. *85*, T. S. 98-100 (1927).

[3] Tech. Assoc. Papers *XIV*, 379-84 (1931).

[4] Paper Makers Mo. J. *67*, 247-50, 253, 291-3, 295, 332-5, 374-9 (1929).

[5] G. Silvio. Papier *33*, 843-55 (1930).
Von Possanner. Papier-Fabr. *27*, 645-8 (1929).

[6] Tech. Assoc. Papers *XIII*, 276-9 (1930).

Air should be drawn first through the sheet and then through the capillary tube, since the relative humidity changes somewhat because of the pressure drop and the cooling that comes from expansion as the air passes through the apparatus. Although it seems unlikely that this change would affect the sheet porosity except in extreme instances, the precaution, which is simple, may as well be taken.

POROSITY; UNITS OF EXPRESSION

The porosity of a sheet of paper can be expressed in any one of three ways: as equivalent pore radius (or diameter or area), as rate of air transmission, or as pore fraction of volumetric composition. As the following definitions show, the first two refer to standard units of area and pressure, while the last is independent of dimensions.

Equivalent Pore Radius

A pore is defined as an opening entirely through the sheet, passing from surface to surface along any path whatsoever. The equivalent pore is the cylindrical opening, of length equal to the sheet thickness, that would transmit as much air as all the pores in a unit area of the sheet actually do. The term specifies nothing whatever about the size, shape, number, or arrangement of the actual pores; it is a purely arbitrary value based on the air transmission, or porosity. Either the cross section, the diameter, or the radius of the equivalent pore may be recorded; the only difference is in the magnitude of the values obtained.

Air Transmission

From the equivalent pore radius, or more directly, if desired, from the pressure drop and the tube constant, the rate of flow of air, in volume per unit time, area, and pressure drop through the sheet, can be calculated. This rate is a dynamic quantity, while the equivalent pore dimensions are static. Air transmission in streamline flow varies much more rapidly than pore radius, being proportional to the fourth power of the radius. It also varies inversely as the first power of the tube length, which in this instance is the sheet thickness. Therefore, although two sheets of the same structure and solid fraction but different thicknesses (basis weights) would have the same equivalent pore size, the air transmission would be proportionately less through the thicker one.

The Pore Fraction

To keep the terminology of volumetric composition uniform, porosity, which is a component of the air fraction, should be expressed as pore fraction. As has been pointed out,[4] however, this quantity can not be calculated from air-flow data alone with any degree of accuracy.

As a matter of fact, irregularities in form and path of the actual pores in a sheet are probably so great that no accurate estimate of cross-sectional area can ever be made. The size of the single, straight, circular capillary that is equal in flow capacity is probably some complex function of the actual pore fraction. For example if the porosity of a sheet were all concentrated in one pore, the volume of that single pore divided by the volume of the sheet would give the pore fraction. If instead of one large pore there were a thousand uniform small pores, in order to obtain the same porosity the cross-sectional pore area, and hence the pore fraction, would have to be 31.6 times as great. Some measure of the number or the diameter of the pores must be had, in addition to flow data, before pore fraction can be calculated.

For the reasons just cited, calculation of the *pore fraction* is eliminated for the present purpose. The *equivalent pore dimension* represents a structural property of the sheet, useful in analyzing the effect of variables and in designing sheets with specific properties. It is possible that some measure of the irregularity of internal structure of a sheet may be derived from a consideration of the limiting value of this quantity at zero solid fraction. The air transmission or *rate of flow*, however, which takes account of the sheet thickness and the pressure drop, is a sheet property, and thus is of more practical interest than the others. Further, it agrees with the general concept and definition of porosity. The equivalent pore and the sheet thickness must be known to give the same information that air transmission gives.

DEVELOPMENT OF METHOD

Calculation of Porosity

The calculation of sheet porosity by the method described is based on the assumption that the flow through the sheet follows Poiseuille's equation

$$V = \frac{\pi r^4 P}{8 \eta l} \qquad \ldots\ldots(1)$$

for streamline flow.

The methods of calculation have been set forth frequently elsewhere,[2, 3, 6] but will also be recorded here, for reference, together with an explanation of the symbols used. It will later be shown that some of the assumptions made are not justifiable. This, however, does not destroy the value of the method since any corrections necessary can be made for the errors thus introduced.

The symbols used in this article are grouped below, for convenience:

η = viscosity of fluid (for air at room temperature = 0.00018)

K = capillary tube constant $= r_t \sqrt[4]{1/l_t}$
l_s = thickness of sheet (length of equivalent pore)
l_t = length of standard capillary tube
P_s = pressure drop across sheet
P_t = pressure drop across standard capillary tube
R = pressure-drop ratio, P_t/P_s
r_s = equivalent pore radius for unit sheet area
r_t = radius of standard capillary tube
V = air flow through sheet in cc./cm²/sec. under 1 g/cm.² (1 cm. water) pressure head

Suppose a capillary tube of length l_t and radius r_t is placed in the instrument, and a sheet of thickness l_s is clamped in position. When vacuum is applied and the manometers have become steady, pressure drops P_t and P_s are read across the tube and the sheet respectively. At this time the volume V flowing through sheet and tube per unit of time are the same. Then

$$\frac{\pi r_s^4 P_s}{8 \eta l_s} = \frac{\pi r_t^4 P_t}{8 \eta l_t} \qquad \ldots\ldots(2)$$

where η is the absolute viscosity of the air, and all lengths are expressed in centimeters and pressures in grams per square centimeter. Transposing and cancelling terms gives from (2)

$$\frac{P_t l_s r_t^4}{P_s l_t} = r_s^4 \qquad \ldots\ldots(3)$$

Hence the fourth root of the left-hand member of (3) is the equivalent pore radius.

In practice, $\frac{P_t}{P_s}$ may be designated as the pressure drop ratio R, and

$r_t \sqrt[4]{1/l_t}$ as the tube constant K, whence $r_s = K \sqrt[4]{R l_s}$ .....(4)

The air transmission or unit rate of flow is then

$$V = \frac{\pi r_s^4 P_s}{8 \eta l_s} \qquad \ldots\ldots(5)$$

where P_s now equals unity. The air transmission can also be obtained without reference to r_s, as

$$V = \frac{\pi}{8 \eta} R K^4 \qquad \ldots\ldots(6)$$

The Turbulence Correction

The pressure drop-flow rate relations must be linear if Poiseuille's equation is to apply. This condition is often not fulfilled, however, either because of turbulence in the flow within the tubes caused by bends, constrictions, changes of shape, or velocities above the critical, or because of impact turbulence at the ends both of the sheet pores and of the standard capillary. To determine this effect directly, the standard tubes must be carefully calibrated for their flow characteristics.

Relative values satisfactory for many purposes could be obtained if measurements were made every time with the same

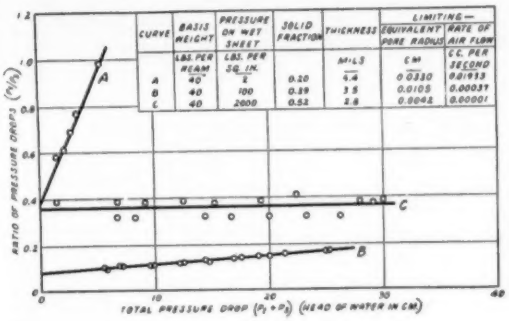

FIG. 1

Graphical determination of the limiting pressure drop ratio from values obtained at several pressures.

pressure drop across the sheet, but this would be difficult and tedious to arrange with this type of apparatus.

A simple means of correcting for almost any sort of error in relative flow measurements, suggested by Stamm,[1] has been found entirely satisfactory for the present purpose. It is necessary to obtain only two values for the ratio R, and to plot these against the total pressure drop $P_t + P_s$. A straight line drawn through these points will give a limiting value of R when $(P_t + P_s)$ is zero, which can safely be taken as a true value. The method is illustrated and the magnitude of the corrections involved is shown in Figure 1. This figure indicates that the correction is large for sheets of low solid fraction, becoming less as the solid fraction increases. It is large enough to be of considerable importance with very porous sheets. The size of the correction makes plain the fact that the air flow rates through various sheets should be compared under the conditions at which they are to be used, since two sheets giving nearly the same transmission at low pressure drops might differ greatly at higher pressures.

[1] Stamm, A. J. J. Agric. Research *38*, 47 (1929).

Conclusion

The apparatus and the method described herein can be used to determine the porosity of paper in terms of equivalent pore size or of air transmission, combining ease and flexibility of operation with a satisfactory degree of accuracy.

Training Technical Men At The Institute*

By Henry R. Wriston [1]

Whenever someone gets a bright idea at the Institute and begins to get excited over it, Dr. Kress repeats a magic formula: the idea and the laboratory demonstration are only one per cent of the problem. Getting it in economical production is ninety-nine per cent. The same thing may be said of an institution. The Institute started as an idea backed with enthusiasm. First, support of a more material kind had to be found, then students, and staff, and now buildings and equipment.

That all sounds very logical and very simple. But the idea involved an attempt to create an institution for which there were no real precedents. Without patterns at hand it was necessary to improvise and develop new plans at every stage. From one point of view that has been a severe handicap. It has made many developments seem desperately slow to us. The arduous work of shaping plans and policies must go on for a long time yet before we reach a stable organization and procedure.

Viewed from another angle, however, the unique quality of the project has been a tremendous asset. It is one of the tragedies of American education that it proceeds so largely by imitation. Possibly that is one of the unlooked for and least valuable by-products of mass production and standardization. However that may be, it is manifest that imitativeness is the antithesis of imagination, of research, of the creative spirit. Therefore it is not a desirable attitude of mind for an educational enterprise. Education, if it is to be worthy of the name, must be fresh, vigorous, original, stimulating. Having no precedents has demanded of staff and trustees a resourcefulness and creative effort which might otherwise have been lacking. We ought fully to exploit the opportunity to work out our own policies and not feel that we are wrong merely because we are different from others.

A review of the astonishingly high percentages of disappointing scientific and technical men entering industry from our schools indicates the imperative need of alterations in current educational practices. Modern industrial trends will require a constantly increasing co-ordination between college and shop if industrial advancement is to be economically safe and sound. Our colleges must so shape their educational efforts as to provide young men of broad scientific and philosophical vision upon whose shoulders industry may safely place the heavy responsibilities of averting future economic chaos.

We were faced, at the start, with the problem of scope. The technical phases of the pulp and paper industry are legion. Should we undertake to put the whole plug in at one bite or take off a modest corner which we felt we could manage? Should we seek, in short, to establish an institute of paper technology and deal comprehensively and competently with the whole field or should we establish an Institute of Paper Chemistry, dealing with only one phase (admittedly a central phase) of the general problem. This was a major issue and was threshed out not once but many times. Ultimately it was determined to limit its scope, for two reasons—one of which seems more potent than the other, though in reality it is not. The first reason was the cost. A comprehensive program should not be launched with less than a million dollars in hand and hundreds of thousands for annual operation. Even as it is there is a fixed investment of about $400,000 and the annual budget is $90,000. The second reason was that even if so large an enterprise could be financed, it could not be managed except by standardized methods. If we were really seeking to develop an idea along new lines, it seemed wise to keep it within manageable proportions.

Neither of those two reasons are permanently decisive for we do not know what resources will ultimately be put at the disposal of this enterprise. There is every reason to hope that they will be very large,—and they can be very large without laying a heavy burden upon any one corporation. As to management, we are learning day by day how to work out these new problems. After a time we shall be ready for still other new ones. While, therefore, I have no doubt as to the wisdom of limiting the field of activity during these initial and formative years, there is no valid reason why the scope of the enterprise may not be broadened as time goes on. In point of fact the Institute is not now devoted to chemistry *exclusively*. It would be more accurate to say that it is not yet devoted to technology *inclusively* defined.

Future of Technical Men

Having determined, for the present, the scope of the work, the next question was what relationship technical men would

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 15-18, 1932.

[1] President, Lawrence College; Director, Institute of Paper Chemistry, Appleton, Wis.

bear to the industry during the next twenty years. In operating a school you must know something of the past, but you must also postulate something regarding the *future*. At this point the president of your association made a contribution. Speaking at the dedication of the first building last fall he emphasized that pulp and paper making are in process of transition from being an art to becoming a science. Admittedly it is still in many respects an art, and he cited several illustrations. Equally clearly, however, it is in rapid process of becoming a science. The trend is clear; the ultimate emphasis must be upon the exploitation of scientific data and the development of scientific methods. That being so it follows inescapably that as the technical man is more important now than thirty years ago, there is every reason to expect him to be still more important in the future. That means that more and more he must enter the field of business policy, and Mr. Krimmel made an urgent plea that men being trained for technical positions be given a significant amount of work in economics. He said that men trained in the Institute, if "taught to give consideration to economics could accomplish a great deal toward establishing stability in our industry and assisting it to reach an economic balance."

That recommendation affects the spirit and method of our teaching. There are two general theories. You might call them elegantly by the terms "training" and "education," but I prefer to speak of "stuffing" and "stretching." Shall we lay our emphasis on information or upon imagination? One method lays stress upon the utility of the information,—upon chemistry as a tool. The other method puts its emphasis upon the value of the skilful mind,—upon chemistry as a profession. The process of stuffing tells the boy everything. It is full of categories and lists. It is ladened with techniques and procedures. There is no table or chart, no valve or gadget of whatever kind with which he is not acquainted. With whatever is current practice, he is familiar. He is going through an apprenticeship to a specific trade. He is full of secondhand wisdom, which is not wisdom at all. Having learned by being told, he must continue to learn in the same way. Because there is so much to learn we will tell him nothing that does not concern the paper industry, and teach him only the things for which he will find use. Having told him everything, you examine him to see if it is all there. It is almost an autopsy!

Such a description is no caricature. There are any number of engineers and chemists, so-called, who have not had an original idea in years. They work with the handbooks, they follow the routines; they know the laboratory trade or the engineering trade. Occasionally some refinement, some improvement in mill practice comes from them, but broadly speaking they are machines, reliable, valuable—indeed indispensable but yet inadequate.

The stretching process, on the other hand, starts from different premises and works to a different result. It is based on the theory that present procedures are unstable, that new developments are coming at a constantly accelerating pace. It is based, further, upon the idea that the boy is changing, and that if he really lives, he will keep on with that change which we call growth.

Modern Teaching Methods

In this case you do not describe everything to him laboriously; he can be trusted to read it. You do not tell him to perform every task. Instead you tell him what you want him to do, let him find out how for himself by digging it out of the literature. His knowledge shows in what he achieves; and as you set him harder tasks, as he achieves better and better results, he is stretched and grows. By this method of teaching he gains a mastery of essential procedures of research. If you respond that he may never have opportunity in the press of mill duties to engage in research, my answer is that the intellectual procedures involved in meeting any unexpected or emergency situation which has novel characteristics, are precisely those one follows in doing research. It may be that when he goes into the mill he will be, in some respects, a tyro, and that people who have been there for years can show him things—but he can learn them, and rapidly. On the other hand, he will face problems far more resourcefully, and he is more likely to be responsible for significant and valuable developments than the man merely trained.

I do not mean, of course, that his first excursion to the mill comes after his work in the Institute is completed. He should be thoroughly familiar with the processes of the paper industry, in sympathy with the practical side of its operation, and able to work along with those engaged in mill operation. It is to that end that we have such elaborate equipment, that the students visit the mills so frequently, and that we require them to work in the mills during the summer. They will be working under your direction during the summer time, and we are depending upon you to see that their experience in the mill is thoroughly practical.

The major emphasis in his education at the Institute, however, will have been upon a quickened imagination, an intellectual enthusiasm, a persistent inquisitiveness. Inquisitiveness makes him ask, enthusiasm develops the will to find solutions, and imagination fertilizes the mind to produce ideas. Having learned by experience, all his new experiences will be fruitful in increasing his knowledge. His knowledge being knowledge-in-action increases his power. He is not essentially dependent upon what he has been told, but everything he observes has significance and suggestiveness.

So much for method and spirit directly, but method and spirit lead us to another question: Shall we educate these boys for the paper industry exclusively? That is one alternative. On the other hand, shall we give them a fundamental scientific training, and develop a broad-gauge scientific point of view, using, of course, the enormously varied processes of pulp and paper making for the illustrative material, and as the basis of the problems they are called upon to solve?

As between these two we must choose the latter. How make such a contention if this is really an institute of paper chemistry? To which the reply must be that men will always work better if they feel that there are avenues of escape. We cannot expect a boy to take a vow of fealty and obedience to the paper industry. He ought to be planning, in good faith, to enter it; but we have no right to ask him to marry it and, foresaking all others, cleave only unto it so long as life shall last! How many of you took any such vow when you entered the industry,—or since? Even though he intends to make pulp and paper his work, he will resent a training that commits him irrevocably to that enterprise. If, on the other hand, he has the comfortable feeling that his scientific education is sufficiently basic so that, failing to find a good opening in paper, he will nevertheless be welcome in some other industry, he will do better work. The illustrative material, if it be well chosen, will stimulate and increase his interest in paper problems. In other words, it is the difference in feeling between being trapped, and being led. Every normal human being works better under guidance than under any sort of compulsion.

Developing an Attitude

All of you deal with men, and you know that among those who are educated the greatest failures are not due to lack of capacity or of brain power. The chief obstacles you have to contend with are wrong attitudes toward the work. The men we have had most trouble with at the Institute had both technical training and industrial experience. The next group with which we have had trouble are those who are not sufficiently interested. Those without capacity usually recognize it themselves and leave us cheerfully. It is because any such school as the Institute must cultivate right attitudes that I lay so much emphasis upon this psychological factor of giving them the sense of continuing free-

dom to choose rather than developing the feeling that they are irrevocably committed to the paper industry.

There is another point involved in that issue. Under our democratic theory of education, the idea is current that every worthy and industrious boy is entitled to graduate. It is, as a matter of fact, a vicious educational heresy. The function of any educational institution is, and should be, selective. The mere fact that a boy thinks he wants to enter this industry is not proof that he should. Take all the pains you may in admitting students, there will always be some admitted here who would do better work and be better off somewhere else. If the training is scientifically sound and fundamentally basic, they can be sent to such places as seem most adapted to their needs, without any serious set-back.

Cultural Objective

Even beyond that question of broad basic training, there remains the question of cultural objectives, which is the point raised by Mr. Krimmel, though he was too tactful to use so unpopular a word. Years ago, in "Percolator Papers," Ellwood Hendrick said that the mind needed to be "adequately ripened by cultural study" before one could be a good chemist. That, as a matter of fact, is one of the principal reasons for making the Institute a graduate school. Admittedly the more obvious reason is that we want a groundwork in chemistry, and physics, and mathematics, and biology, and German. But this other reason is scarcely less fundamental. Nor should graduate school move at such a pace as to cut social contacts, break habits of recreational and cultural reading, or do anything else that damages by atrophy the development of the total personality. I look back upon my own graduate years with just a shade of resentment because the work was so exigent that (except for music) all social and cultural development was virtually suspended.

Now I am not arguing for a nice pink parlor culture where the boys sit about and discuss art, though it ought to be said that our best student, from the point of view of the paper industry, reads Browning. What I am saying is that there is no glory, and should be no pride, and there certainly is no efficiency in being a low-brow on all subjects but one. There is no excuse, for example, for barbarous language; there is nothing unmanly in good grammar. There is no reason that the scientific precision of a good piece of work should be concealed beneath statements wildly inaccurate in the matter of English composition. There is no more excuse for a sloppy expression than for a sloppy experiment.

Broad Training

Because a man is a chemist in a mill he is not excused from being an intelligent citizen. It is because of that false view that the world is now in such a state. We suffer not so much from the bankruptcy of banks as of bankers, not so much from civic bankruptcy as from the poverty in ideas of the politicians who run our municipalities. If you are to be an intelligent citizen, it requires attention just as surely as it does to be a good chemist. The division of labor that puts one group in an industry and a group of professional politicians in office is a bad division of labor for those in industry, and the sooner we find it out the better.

It is so also with economics. Mr. Krimmel was correct in saying that bad business economics has put many a good technical man out of his job, and has hampered the transition of the industry from being an art to being a science. Specialists have made a world of trouble with their ignorance of cognate fields. Many a production specialist has felt it to be his whole duty to produce goods. By his very efficiency in one line he has produced more than the market could absorb, and in doing that has destroyed prices. Prices being destroyed the basis for his market and the reason for his production are gone. It is not enough to say that if production outruns sales you must simply train salesmen to a higher pressure so that they can sell more. You cannot solve the problems created by one group of specialists by training more specialists to cure the troubles caused by the first. If business is to be stable (indeed if life itself is to be intelligible) it must be more than a series of competing and roughly conpensating specialties.

How shall we achieve this desirable result? At this point appears the pertinence of the emphasis I attached to "stretching" instead of "stuffing." It would be hopeless to give "courses" in these matters. But if you develop the *habit* of inquiry, if we stimulate the exercise of the imagination, if we generate enthusiasm that gives the will to work, we have only to provide facilities and they will educate themselves—which, after all, is the only way it can be done.

Recreation Facilities

We are about to begin construction of the new J. A. Kimberly Memorial building to house the library and additional laboratories. One of the rooms is labelled on the plans, "recreational reading room." That does not mean that it will be furnished with copies of "Gentlemen Prefer Blondes," "The Saturday Evening Post," and "Bally Hoo." It does mean that in there we shall put books on current problems of the world's lift and work and stimulate the students to inform themselves. To study by oneself requires energy and character, but so does the successful prosecution of a profession. The engineer, graduate of a technical school, whose undergraduate days have given no opportunity for the study of economics or government or literature can here supply that deficiency. The graduate of the college of liberal arts car keep his interests awake and his information up to date. He will have less time for this specific item because he must be repairing the deficiencies on the technical side.

Such a room is properly to be called recreational. Every study of the subject has shown that the essence of recreation is change, and when the student turns from chemistry to economics there is refreshment just as truly as though he read current fiction. We have made available to both staff and students the finest possible equipment for physical exercise. We know that it pays good dividends to keep in trim. It is no less logical to make available the finest possible material for mental recreation. It will pay dividends no less significant.

Balance Necessary

Dr. Kress is fond of saying that the laboratory man needs a balance wheel, and he is right. I should like to change the figure. He needs a governor—one ball of which is the technical knowledge, the practical skill, to check and control his basic theories. On the other side, moving just as rapidly and exercising a compensatory control are his economic, political, social, and cultural appreciations. These appreciations save his job for him in times like these. They open the way to a more and more responsible part in management,—and (this is a pertinent point) they make the texture of life itself firmer and richer. This is not merely the point of view of an administrative officer of a liberal arts college. The president of the Case School of Applied Science, said, "Society demands more of the scientist than proficiency in research, and more of the engineer than the ability to bend nature to economic ends. It is our boast that we teach men how to work efficiently. This is not enongh; we must teach men how to live as well as labor, and how to lead as well as obey.

If we look at the matter thus broadly, the interest of the individual, and of the industry, and of society are seen to coincide. The individual gets what he is designed for—the opportunity to grow, to mature, to ripen. The industry gets what it desperately needs,—well-trained, keen-minded, and broad-visioned men, Society gets effective citizens.

This then is the educational philosophy of the Institute of Paper Chemistry. I am asking for your patience and your faith and your support as we attempt to realize it in practice.

Developments in the Preparation of Non-Fibrous Materials*

By K. A. Taylor, H. C. Schwalbe and H. R. Myers

Due to the fact that the committee on preparation of non-fibrous materials was not completely organized until near the end of the year, development reports have not been prepared for all materials. This report covers developments during the current year on two materials, water and paper sizes. The report on water preparation has been prepared by H. R. Myers and the report on paper sizes by H. C. Schwalbe. Since no report was given for this committee last year the report on preparation of paper sizes covers developments in the last two or three years. These two reports are presented below.

Preparation of Water for Papermaking

The year 1931 has seen many decided improvements in the art of water purification. It is intended in this report to mention as briefly as possible only those having a direct interest to pulp and paper manufacturers.

In many mills the water supply is screened through revolving screens or filtered through coarse sand filters, no attempt being made to remove dissolved iron, coloring matter or organic matter. In other mills, filtration is preceded by coagulation and sedimentation in order to remove colloidal and dissolved impurities.

Coagulation

Developments in coagulation have been along two distinct lines, in the one case, the application of new coagulants and in the other case, a greater appreciation of the necessity of adequate mixing of the coagulants with the raw water.

The common coagulants which have been in use for many years are alum sulphate and iron sulphate. These have been used with or without the addition of an alkali with a fair degree of success. For certain applications, however, considerable economy can be made by the use of recently developed treatments. Chlorine is practically indispensable. It is particularly advantageous in surface waters containing high coloring matter or high iron because of its strongly oxidizing effect. It is used in certain instances in conjunction with a small amount of iron sulphate, the chlorine being intimately mixed with the iron sulphate solution immediately upon entering the mixing chamber and forming chlorinated copperas. This plan of treatment has proven adaptable to waters high in dissolved iron because it makes use of the dissolved iron in addition to the added iron sulphate for coagulating.

Chlorine and alum have in other instances been applied with marked success in waters high in coloring and organic matter.

The necessity of immediate and violent mixing of the applied chemicals to the incoming water has been given more study this past year than ever before. It is now quite generally recognized that for most efficient coagulation, immediate and violent mixing for several minutes is required followed by continuous, less violent agitation for periods of from 15 to 30 minutes. This is accomplished in baffled mixing chambers built as part of a sedimentation basin or as a circular tank provided with mechanical agitator which is built separate from the sedimentation basin. In applying mixing to older filter plants, the circular mixer is often found easier to install than the baffled mixer.

In some clear waters free from appreciable quantities of suspended matter, chlorine followed by a detention period of two to three hours and filtration through activated carbon beds has given excellent color removal but this plan is not recommended where the water contains much iron or suspended matter.

In some instances, in order to remove tastes and odors from water, small quantities of powdered activated carbon are fed into the water as it passes from the sedimentation basin to the filters. This, however, is more of a municipal filtration application than one for pulp and paper mills.

Chemical Feeding

This year has witnessed considerable refinement in the apparatus for feeding chemicals to water. Dry type of chemical feeders have been made more accurate and in some cases have been controlled by electric pH recording devices in order to maintain a predetermined pH on a coagulated or pH corrected water. Results of this automatic control have been encouraging but we believe the apparatus is not yet perfected to the point where its sale is being pushed.

Slime Control

Further progress has been made in controlling slime by the use of chlorine and in some cases chlorine and ammonia are used to sterilize the water supply. Special study should be given to each individual mill to determine whether chlorine alone or chlorine and ammonia should be used. With waters high in organic matter, usually chlorine and ammonia are preferable because the ammonia slows up the action of the chlorine by the formation of chloramines and therefore reduces its oxidizing action on the organic matter. The sterilizing effect of the chloramines persists for many hours longer than that of the chlorine alone.

Iron and Manganese

For the complete removal of iron and manganese from water supplies, a specially treated zeolite has been produced. It can be used in either gravity or pressure filters and will remove dissolved iron and manganese from surface waters or from well waters. It is particularly adapted to well water supplies where no preliminary treatment other than neutralizing the acidity is required. In this application, the pressure method is usually desirable since the water can be pumped directly from the wells through the iron removal unit to the mill.

The zeolite used for this purpose is a natural green sand zeolite similar to that used for water softening except that it is processed somewhat differently. It is regenerated with potassium permanganate solution in exactly the same way as a zeolite softener regenerated with sodium chloride solution and the cost of operation is very low.

Water Softening

Some mills have found that the hardness in their water precipitates a considerable portion of the size, and it was further discovered that practically no precipitation of size occurred in the same water which had been zeolite softened. While no definite results are yet ready for publication, the experiments are continuing not only with 100 per cent soft water but with waters of varying degrees of hardness to determine the most suitable type of water for sizing.

The Preparation of Paper Sizes

In the past two years, considerable work has been published in the field of the manufacture of paper sizes. It seems de-

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 15-18, 1932.
Contribution of the preparation of non-fibrous materials committee, K. A. Taylor, chairman.

sirable to review this literature. More than in the past, these developments in sizing are influenced by the modern theories of sizing. It would be very interesting to study the inter-relation between the theory and the new processes, but in this report only the methods of the practical manufacture of paper sizes will be discussed.

Of the new processes we mention:

1—Delthirna
2—Williams
3—Bewoid
4—Solvent sizing.

Adjustments in the old process were made with:

5—Dry sizes
6—De Cew's patents
7—Kymmene A. B. patents
8—Chintchin's patent.

In the Delthirna process a dilute solution of caustic soda is circulated through pipes which contain gum or wood rosin in coarse pieces. It results a sodium resinate solution of constant rosin content. The process is of great simplicity and has many advantages. It has so far been introduced in 180 paper mills, mostly in Europe. Fifteen installations were made in this country, and nine in Canada.

The concentration of the caustic soda was determined by Thiriet and Delcroix[1] to .5 per cent, but in a Russian publication 1.0 per cent is preferred[2]. The temperature of the caustic solution seems to be of more importance than was formerly believed. Delcroix had asked for 15 deg. C., but 22-24 deg. C. was found to be better[3]. Probably it is best to choose such a temperature that can always be kept constant, and regulators should be used. In regard to the circulation speed of the caustic solution, only one instruction is to be found in the literature (5-6 cm./min.[3]).

The size of the rosin pieces is on an average 5-6 cm. in diameter. Usually, the over large and the dust-like particles are filled into the first pipe, and into the following pipes more uniform pieces are dumped. According to investigations by Professor Sherjobows this procedure causes precipitation in the pipes. Therefore it was proposed to change from time to time the direction of the caustic solution so that it will flow into pipe No. 1 first, then during the next week into pipe No. 2, and in the following period it will pass into pipe No. 3 before going to other pipes.[3]

The criticism has often been made that Delthirna size does not contain free rosin, and there exists a proposal by Delcroix to add some sulphuric acid for this purpose. Later the use of ammonium sulphate, or alkali chlorides was suggested.[4] Strecker has recommended the addition of so much ammonium sulphate to the caustic solution that 50 to 100 per cent sodium sulphate is formed. This enlarges the particles and gives a high free rosin content.[5] Later, Strecker suggested the addition of some ammonia water beside the ammonium sulphate.[6]

Beside the argument that Delthirna size would contain only full saponified rosin, many other points were criticised. Suran has compiled them.[7] The most important question is that of the saving in rosin. The license fee of the delthirna process is quite high so that a considerable saving in rosin is necessary to compensate this cost. In former advertisements of the Delthirna process a saving in rosin of 30 to 60 per cent was mentioned. In literature only a few statements about the real savings are mentioned. It was calculated in the mills of the Navarre concern, where the process was developed, that a saving of more than 30 per cent was made. In one smaller Norwegian paper mill even 30 to 60 per cent is claimed.[7] In another publication the same figures are quoted.[8]

But it is very interesting to note from the accompanying original graphs, showing the rosin consumption, how high the rosin amount was before introduction of the Delthirna process. It can be easily proven that in many well-supervised mills, with cooked size, the lower figures are reached today. These graphs indicate the following: For the Moufourat paper mill, producing fine papers from wood and esparto pulp, before Delthirna 2.84 per cent rosin consumption, after the introduction of Delthirna 0.99 per cent. In the Champ mill, for the manufacture of fine heavy papers from wood pulp and ground wood, 2.12 per cent before and 1.20 per cent afterwards. In the Vincent de Blanzat mill for fine writing papers, manufactured from wood pulp and rags, 6.40 per cent before and 4.87 per cent afterwards. And in the Rouen mill (all belonging to the Navarre concern) for printing and writing papers, 1.71 per cent before and 0.68 per cent afterwards.

For the question of the decrease in rosin consumption, the interesting investigation by Hochberger[9], with the remarks by Strecker[10], should be studied. Hockberger found that in paper with a basis weight above 60 pounds, 30 per cent less rosin than formerly used was necessary, but that in lightweight paper only 13 to 14 per cent was saved. In a Russian paper mill, 19 per cent rosin consumption was reported.[11]

Beside the rosin savings, it is claimed by the Delthirna Company that the size is very uniform, which does not seem to be questioned. The saving in steam is also undisputable. But it is doubtful that less labor than formerly would be necessary. Improved color of the size through the absence of any heat, less tendency to specks and precipitations in pipes, are further claimed. The consumption of alum seems to be no higher than with the old process.

It would be highly desirable if, in a paper mill with normal conditions, parallel tests with Delthirna and well-prepared rosin size could be made.

In the Williams sizing process rosin is crushed in a pebble-mill, then alkalies in any desired amount, and eventually protective colloids are added, and ground together. After dilution with water, the mixture is screened.[12] The process does not require any heat. The power consumption is small. The size is not manufactured continuously, as in the Delthirna system, but in batches, which may cause variations in the efficiency of the size. The advantage is certainly that the process is more flexible than Delthirna and, according to mill conditions, the free rosin, or colloid content can be adjusted. The Williams system is introduced in a few mills. It will be necessary to wait for further information before a definite evaluation may be given.

Another new process is called Bewoid, an abbreviation of the name of the inventor, Dr. Bruno Wieger, and the word "dispersoid."[13] In this process 220 pounds of rosin are filled in a mill with a mechanism which produces more of a cutting than a grinding action. The rosin is first molten in this mill, and then water with 0.1-0.7 per cent alkali is added. Further, a hot solution of 4.4 pounds of casein in 6.2 gallons of water, containing ½ pound caustic, are filled in. The mill is agitated at 200-300 r.p.m. for about 10 to 15 minutes. Then cold water is added to dilute to 40 per cent solid content, and the size is dumped to a storage tank, from which it is sent without further dilution to the beater.[14] For special purposes, the following mixtures are recommended: 85 p rosin and 15 p paraffin, or 6 p rosin, 2 copal, 2 shellac, or for surface sizing 6 p rosin, 3

[1] U. S. P. 1,759,526; German Patent 532,168.
[2] Doliwo-Dobrowolskij: Zellstoff und Papier 9, p. 836, 1929.
[3] Russian Patent 37,370, 1928.
[4] Diamant Technologie und Chemie der Papierfabrikation, Vol. 27, p. 150, 1930.
[5] German Patent 536,472.
[6] German Patent 537,940.
[7] Suran Papierfabrikant 27, p. 633, 1929.
[8] Strecker Technologie und Chemie der Papierfabr, Vol. 26, p. 1, 1929.
[9] Hochberger: Papierfabrikant, Vol. 27, p. 83, 97, 102, 1929.
[10] Strecker: Papierfabrikant, Vol. 27, p. 99, 1929.
[11] Kanopatzkij: Bum. Prom., Vol. 7, p. 967, 1929.
[12] Williams: Paper Mill, Vol. 53, No. 44, p. 6, 1930.
[13] Wieger: Wochenblatt fur Papierfabrikation 626, 1931.
[14] Becker, Ltd., Can. Pat. 305,650, Belg. Pat. 370,401, French Pat. 685,808, Brit. Pat. 335,902.

p copal, 1 p paraffin. Wieger[15] claims that with this size, 25 per cent rosin will be saved. The Bewoid size contains nearly 100 per cent free rosin of the best particle size. Wieger is of the opinion that rosin with a size of below 1 will give excellent sizing results, and with a particle size of more than 1 diameter poorer sizing will result, and larger particles than 10 will give very deficient sizing.[16]

Beside these mentioned publications of the inventor, no further information is available, therefore an analysis of the process is not yet possible.

Solvent Sizing

About a year ago, solvent sizing was announced. This is not an entirely new idea, since in 1896 Arledter[17] had sized paper with rosin dissolved in alcohol. But Ogden Minton, the inventor of solvent sizing, was the first to show a practical solution of this idea.[18] The paper is made without sizing, i.e., waterleaf on the paper machine. The finished paper is then dipped into a solution of rosin in carbon tetrachloride, or ethlyene-dichloride, and then passed into a Minton vacuum drier where the solvent is evaporated. The paper is sized very well and has not lost in strength, which, as Minton could prove, always happens in the old way of sizing. In a special solvent-recovery apparatus the expensive solvent will be recovered.

The process seems to be very attractive. Its main disadvantage is that new equipment is necessary, which may be high in first cost. Future investigations must prove that the improvement in the quality of the paper is so considerable as to warrant extended change in equipment of existing mills. The decision would be less difficult in the case of the erection of an entirely new mill.

In the preparation of rosin size, by cooking the rosin with alkali not many radical changes can be reported. But, through a thorough investigation of the process and mill conditions, the products are much more uniform and possess more sizing power. Especially the cooking time was studied. A detailed description of a process using a pressure-vessel is given in the literature.[19] Arledter mentions his process in a review of his work.[20]

Dry Sizes

In the last few months dry sizes have been put on the market. These products are regular-cooked rosin sizes, but they contain no water. The size made by Kalbfleisch Corporation is cheaper than regular rosin sizing, containing 40 per cent water, but it must be put into solution in a tank with a centrifugal pump before going into the beater. The product of the Paper Makers Chemical Corporation is more expensive than regular size but it can be put directly into the beater. In a patent[21], Dreshfield proposes to saponify rosin with alkali, then remove the water and mix with 1 p dry size, 2 p of alum. This product is to be added directly to the beater. It may be of interest to know that such processes were used before the war. E. Fischer[22] evaporated rosin size in vacuum. The size was sold in considerable tonnage, but later given up. It is hoped that the new and unquestionably improved products will stay in the market. The simplicity of adding rosin size directly to the beater should be attractive enough.

Order of Adding Alum and Size

The improved sizing does not result from changes in the manufacture of the size, but in its application is the opinion of J. A. DeCew in a very intense study. In U. S. Pat. 1558845, DeCew proposes to add the rosin size to the pulp in the beater, but to mix the alum in after the stock has passed through the jordan.

In U. S. Pat. 1558846, DeCew adds to the rosin size, first, colloidal aluminum hydrate and then after the coagulation, aluminum sulphate is added.

In U. S. Pat. 1586569, the pulp is treated with aluminum sulphate and then as the stock enters the jordan a stream of size emulsion is added.

In U. S. Pat. 1589947, size and alum are both added after the stock has left the jordan.

In U. S. Pat. 1663976, aluminum sulphate shall be made basic after it is dissolved in water, and should be used then.

In Can. Patent 260716, a colloidal solution of aluminum resinate is produced by dissolving a resin soap in a protective colloid and then aluminum sulphate shall be dissolved in a protective colloid, and then both mixed.

In U. S. Pat. 1753775 the fibers shall be treated first with sufficient aluminum sulphate to render them astringent to pH of 5.0-6.8 and then rosin size is to be added.

In U. S. Pat. 1799216, a stream of rosin size and aluminum sulphate solution is mixed and added at once to a stream of beaten pulp. In a somewhat similar way to DeCew's U. S. Pat. 1558846, Spencer in U. S. Pat. 1713642 will coagulate the rosin size solution with a peptized colloidal solution of aluminum hydrate.

The advantage of adding aluminum sulphate first to the pulp and then to mix in the rosin is described, too, by Girardet in French Patent 635419, and by Kanamarec in an interesting publication in the Jour. Soc. Chem. Ind. (Japan) Vol. 33/123B/-1931.

An improvement of the sizing result is claimed by Kymmene A. B. in Finn. Patent 12201. This patent may create special interest, as in the Kymmene mill, Mr. Roschier conducted his well-known and highly interesting tests on sizing. For decrease of an alum excess after the sizing is finished, it is proposed to add some caustic soda, or soda ash, or lime until the pH of 4.2-5.7 is reached.

Similar is a French Patent, 577349, by Dobler, where, after finishing the sizing, an alum excess is neutralized with calcium carbonate. There will be formed a neutral salt which does not harm the sizing.

In U. S. Pat. 1713642, L. M. Booth proposes to add soda ash after the addition of size and size precipitation agent.

Work of Chintchin

Finally, the work of Chintchin needs consideration. He is of the opinion that the swelling of the pulps is of great influence in sizing. In former years, wood pulps were produced which, through slow cooking, were rich in pentosan and could swell easily. These pulps were sized satisfactorily with rosin sizes high in free rosin. Rags are low in pentosan, and as is well-known, were always sized best with nearly full-saponified rosin size. Modern, quick-cooked wood pulps are low in pentosan and, therefore, full saponified sizes, like Delthirna, work very well. Beside this, the closed white water systems caused higher acid conditions in the beater. Chintchin could prove that a very good sizing with rosin of 50 per cent free rosin can be secured if the fibers are treated with 7 per cent caustic soda (based on the weight of rosin used), and then the size added. The sizing was much better than with Delthirna. Delthirna carries 10.8 per cent caustic, but it is essential that caustic is previously in the fibers so that they can swell.

In conclusion, it may be said that it is highly gratifying that after a period of just imitating the old sizing rules, now in real research new processes are being investigated.

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[15] Wieger: Papierfabrikant, Vol. 29, p. 591, 628, 1931
Anonym. World's Paper Trade Review, Vol. 95, p. 1932, 1931.
[16] Wieger: Papierfabrikant, Vol. 28, p. 115, 1930.
[17] Arledter: Papierfabrikant, Vol. 28, Special Number, p. 131, 1930.
[18] O. Minton: Pacific Pulp & Paper Industry 12, p. 26, 1931.
[19] Ann. Chemiker Zeitung 54, 915, 1930.
[20] Arledter: Papierfabrikant 28, Special Number, p. 130. 1930.
[21] A. C. Dreshfield: U. S. P. 1,836,435.
[22] E. Fischer: German Patent 178,484.
[23] Chintchin: Bum. Prom., Vol. 10, p. 1, 1929. Papierfabrikant 28, p. 517, 1930.

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Creative Management*

Examining the Value of Human Appeal in Business and Industry

By W. L. Carter[1]

Pointing out how his company trains every employee to look "for a created value in his individual task," Mr. Carter outlines in this article some of the unusual results obtained in his organization by making the employee's job increasingly interesting, thus arousing the creative instinct. To illustrate this principle, the author describes in some detail the reorganization of one department of the company and analyzes the resulant increases in output and in earnings.

Some years ago much was said about efficiency and scientific Management. In this company we have adopted a new policy which we call Creative Management. It embraces the old and adds the new. It consists of defining the tasks of each individual so that they are definite rather than abstract; defining the methods so that they are efficient; and, above all, making the job—whatever it may be—interesting, for then and then only do you appeal to that creative instinct, which is so much more cogent than any other existing force in business.

To us the business situation resembles an ailing person who has consulted many specialists, none of whom has been able to diagnose one distinct cause of the ill health, but each in turn suggested certain treatments which, from the specialists' point of view would contribute to the recovery of the sick man. Finally, the family doctor is called in and decides there is no special treatment required, but if the patient would stop worrying, live normally, exercise, eat well, and stay out in the open he would build himself up and his ailments would disappear.

When we applied this theory to our business, it indicated that we should accept for what it was worth, the advice of outside specialists in respect to sales, accounting and production. But, like the sick man, the real problem was to build up the general health of the company. We must cease worrying about the past, and get out of the habit of regarding the boom times of 1929 as normal. We must accept the existing conditions as normal and change our methods to make our business profitable under these conditions.

With this decision as a basis, the usual viewpoint of executive management was reversed; instead of focusing our attention on profits, a complete and thorough study of losses was undertaken. The analysis was absorbingly interesting—it took on the thrill of a trip of exploration and adventure.

The ordinary losses experienced by every business—such as claims, bad debts, waste, etc.—were studied quickly in order to effect better means of control. This was a routine matter and easily disposed of. But, as a result of this study, suggestions were made as to possible savings. Any possible saving that can be realized is merely the termination of an existing loss. The difference between this field and the field of routine losses is as follows: In the latter the losses are apparent; in the former, until the possibilities of savings are discovered the losses are concealed.

There is no greater adventure in life than a treasure hunt. The enthusiasm with which various members of the organization engaged in this treasure hunt to find these unexpected savings, was almost unbelievable.

Again, savings such as these rarely can be effected without a change in method, in many cases calling for creative genius and ingenuity of high order. The creation of a value is innately satisfying to the individual. It arouses that spirit of optimism and enthusiasm so necessary to the successful conduct of a business. The very uncertainty as to where these savings existed, the discovery of wholly unexpected possibilities, the fact that the field is limitless, all contributed to the job of the undertaking.

Results of the Program

Specifically, some of the results of the program were the following: Labor payroll total was reduced very substantially but individual pay actually was increased; this was accomplished through various wage incentive methods. A definite program designed to make routine operations interesting produced extraordinary results. The functions of many clerical operations were rated and scored, thus eliminating the monotony of the work. Savings as high as 50 per cent were effected in such prosaic duties as filing, stenography, cost accounting and bookkeeping.

The search for a saving to eradicate a loss became a company objective. Every employee from the president to the office-boy joined in the search. Habits, methods and routine that were deadly and uninteresting were swept aside in the crusade. Each and every employee became an explorer, looking for a created value in his individual

* Executives Service Bulletin.
[1] President, Nashua Gummed & Coated Paper Company, Nashua, N. H.

tasks. The amazing fact is the number of them that discovered this value.

Sales, in common with those of other manufacturers in our industry, fell off. Prices, unable to resist the law of supply and demand, continued to drop. But the created value discovered by the explorers of the organization continued to out-weigh the shrinkages. Profits were maintained, but a value far exceeding the dollars and cents return was added to the company's resources. It does not show on the balance sheet but is worth all the assets the bankers study so carefully; it rates ahead of quick assets because its effect is instantaneous; it is never exhausted because the more it is used the greater is grows; it is the creative instinct inherent in every individual. If one recognizes the value of this force in his methods of management, he will be amazed at the results.

Although illustrations of how we apply the principle of creative management might be drawn from the manufacturing, credit, sales or any other department of our business let me describe the reorganization of the stenographic department. I purposely select this department because the routine, prosaic nature of the work will show best, perhaps, the possibility of instilling interest appeal. The investigation began with a time-study survey differing from the usual time-study in that particular attention was given to the character of the task performed; that is, whether it was monotonous or if it had details of variety which provided interest, and what methods the employee adopted either consciously or unconsciously to provide variety. Stop-watch readings were taken to determine standards. Such a survey takes considerable time. It must be spread over several weeks, to be sure the records are a true picture of normal operations and not an unconscious response to engineering observations.

Stabilizing Output

Among the interesting facts discovered was that a very uneven output existed due to an over-extension of energies at certain times, followed by reactions distinctly below normal. All our dictating is done to machines. It was evident that the quality of the cylinders not only had a direct effect on the typist's output of any particular cylinder, but also qualified what might be termed her potential performance. A poorly dictated cylinder produced a quite evident fatigue, which carried over to the next cylinder, thereby affecting the typist's production in spite of the dictation quality of the succeeding roll. Some girls made no physical effort to meet this situation, while others unconsciously selected these periods to leave their machines and recuperate.

Several remedies were applied. The dictation itself was studied. The dictators, some of whom were directors of the company, were rated on a quality basis by the stenographers themselves. The publication of this rating provided a stimulus for the dictators to improve their quality.

There was quite a difference in the technical qualifications of the typists themselves. It was found that some of the fastest typists under the old system completely fell down on a measured production basis, due to nervousness and emotional excitement. Each case of this character was studied individaully. A reproducing machine was equipped with a second listening appliance, so an investigator could listen in on the actual performance of the work by the typist.

Throughout the development of the reorganization, the girls were kept fully informed as to the purpose of each and every study. Their interest in it was as keen as that of the management itself. This was very important, as it provided the cooperation throughout, which was essential to the success of the plan.

Another change was made, which further created interest on the part of a majority of the operators. Having formerly typed only the cylinders from one dictator, operators were unfamiliar with the language employed in other departments of the business, with the exception of two or three who could type with equal facility dictation from any department of the company. The entire group, therefore, was divided into three classes—those able to take dictation in Class A; Class B was established for any who could take cylinders from any two departments; Class C for those qualified for only one department. Different base rates were established, "A" being highest and "C" lowest.

These rates had nothing to do with output but were established solely on a qualification basis; that is, ability to take dictation from one or more departments. It was then provided that any girl below Class A could promote herself automatically any time to the next higher class by passing a suitable examination. The greater flexibility of the department in having operators able to take dictation from any department more than offset the cost of the automatic advance in base rates.

The net result is best shown by the final mathematical results:

Output per operator before standardization—440 six-inch lines per day.

Output per operator after reorganization—1,440 six-inch lines per day.

Fatigue before standardization—an important factor, resulting in very uneven output.

Fatigue after standardization—practically eliminated as a production factor.

Hours of work before—very uneven, overtime an unusual performance.

Hours of work after—almost mathematically standard, an over-all time of eight hours per day, actual operating time 7½ hours per day, with two 15 minute rest periods—in the morning and afternoon.

Quality—vastly improved on the new basis.

Typists' income increased—25 per cent.

Saving to the company—25 per cent.

While the illustration I have given applies to an office function, the same theory has been put into practice in both the production and the sales fields. Creative Management is a marvelous potential force, making a direct human appeal to every employee, and in it we have the means of making our enterprises more interesting and more profitable to our employees as well as to our stockholders.

St. Regis Paper Co. Wins Verdict

[FROM OUR REGULAR CORRESPONDENT]

HARRISVILLE, N. Y., June 13, 1932.—A verdict of no cause for action has been rendered in the alleged breach of contract case brought by the St. Regis Paper Company against the Harrisville File Folder Corporation, formerly of this village but now located in Brooklyn. The defendant under the verdict is consequently freed from the obligation of meeting a bill for $16,504.02 held by the plaintiff for materials purchased. A counterclaim brought by the defendant seeking $90,000 damages is also dropped.

The action was the result of a contract made in 1930 in which the St. Regis concern agreed to supply several tons of tag board to the defendant for a certain period of years. The defendant contended that the materials purchased did not meet specifications which resulted in a loss of business.

Vacuum Pumps in the Paper Industry*

By Carlo Vicario[1]

Gas is a compressible fluid while water is to all intents and purposes incompressible. Water or liquid pumps can be rated very definitely in gallons per minute and the flow of water from or to a pump can be readily measured by a number of well known methods. The commonest among pump manufacturers is the venturi flow meter. Such meters are accurate and may be easily checked by weighing the amount of water passing through in a given time.

Rating of vacuum pumps or compressors is not quite as simple. Since gas is compressible its volume entering and leaving the pump changes. Early reciprocating pumps were rated in displacement but this was found unsatisfactory owing to the "slip" which varied with valve design and the vacuum or pressure under which the pump was operated. Even cycloidal and vane type gas pumps were rated at a certain capacity at a given vacuum based on a calculation of the probable net displacement.

In rating vacuum pumps we looked for an easy and accurate method of test which would permit us to run every pump throughout its range of vacuum and pressure and measure its capacity at regular intervals. We hit upon the orifice method as being the most satisfactory, but instead of using a few orifices and changing sizes during a test, we use a header containing a large number of small orifices. There is a header for every size of pump and it contains enough small orifices to give zero vacuum when all are open. They are then capped over, a few at a time, the vacuums being measured by a mercury column attached to the center of the header.

The orifice consists of a round reamed hole with sharp edges in ⅛ inch brass plate and a common size for use with large pumps is ½ inch diameter. The orifices have been calibrated by measuring the air discharged through them into a gas container. You will see then that our ratings are based on the actual cubic foot per minute capacity being taken into the pump and that no allowance for slip is necessary.

We are often called in to recommend a pump to take the place of an existing pump of the reciprocating or cycloidal type. In the case of a reciprocating pump the "slip" for different types and makes is fairly well known and a calculation of capacity can be made fairly easily. Also, the number of these units in the paper field is now relatively small, most of them having already been discarded. We found that little data was available on the net or actual capacity of cycloidal pumps at different vacuums and for this reason purchased two of these units and ran our own orifice tests on them. We checked these tests on larger pumps in actual operation on paper machines. Figures are now in workable form and we can recommend definitely, the right size and speed for a pump to replace one of this type.

The selection of the proper pump for a given condition depends on many factors, not least important of which is the porosity of the sheet. Naturally the amount of air which may be drawn through a given sheet depends not only on its composition and thickness but on its moisture content. At the flat boxes the sheet is fairly well sealed with water while at the couch it is dryer and there is a tendency for more air to pass although this does not follow for all types of paper. The size of pump is determined largely by experience with a large number of similar installations, adjustments being made for machine widths and speeds.

A large amount of water is drawn along with the air from the flat boxes on the wire and it is not economical to take this water through any vacuum pump no matter of what type. The water may be separated by proper piping arrangements which will be illustrated hereafter, or the air and water may be taken directly to the separating tank of a flat box pump. This unit consists of separate air and water pumps built together in a unit. The air is separated and removed from the top of the tank while the water is taken from the bottom and discharged to the desired point. This arrangement gives a closed system and is particularly desirable where dirt is an important factor. The barometric separation system is quite satisfactory but in all cases where the white water is saved an additional white water pump is needed to deliver the water to the save all or to the machine room floor.

Passing of water through the vacuum pump from suction boxes on the wire of a Fourdrinier machine or on the wet part of the felt on a cylinder machine is undesirable for several reasons. The quantity of water under these conditions may be as much as 25 per cent by volume of the air being handled. It therefore cuts down the actual air capacity of the pump and increases the power required. The white water contains considerable fibre and in time this will cause wear. Where large amounts of alum or other chemicals are present the pump will be corroded. In the case of suction couches or presses the quantity of water is much less and the fiber content lower and our experience indicates that it can be passed through the pump without any bad effects.

The foregoing remarks lead naturally to the question of the calculation of the gallons per minute of water coming out at various points on paper machines. Unlike air calculations, this does not depend only on experience. It will be seen that if the percentage consistency of the sheet, as it reaches the first or wet end suction box, were known, it would be perfectly simple to calculate the gallons per minute of water passing that point knowing the tonnage production. Similarly, it could be figured at the couch and presses and dryers, if we knew the consistencies at each point.

Average tests indicate percentages consistency of 10 to 12 per cent before the suction couch, and 14 to 18 per cent going to the first press. For the couch of a one hundred ton machine, this means roughly 35 to 60 g. p. m. and this quantity would not affect the performance or life of Nash pumps of the sizes used. The quantity taken out at the suction press is usually less than at the couch. This leaves only the flat box water to be figured.

It has been found that for book, bond, writing and similar papers the percentage consistency at the first flat box varies from 2 to 4 per cent. For news the consistency will be about 2 per cent and for light kraft board made on a Fourdrinier it may be as low as 1 per cent. Tissues being fairly free, will show higher consistency at the first box since a larger amount of water drains through the wire as it passes over the table rolls. A typical 25 ton Fourdrinier making writing paper will be removing about 200 g. p. m. through the flat boxes. This is an excessive amount to pass through the small vacuum pump which would be used.

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* Presented at the May meeting of the Lake States Section of the Technical Association of the Pulp and Paper Industry, Appleton, Wis., May 10, 1932.

[1] Assoc. member TAPPI, manager, pulp and paper dept. Nash Engineering Company, New York, N. Y

At present, suction rolls and their performance are the subject of much thought and discussion among paper manufacturers and their successful development has probably meant more to the industry than any other single item in recent times. The operation of these rolls depends, of course, on effective vacuum pumps to extract the water.

We know that the suction draws the air away from the box inside the roll and that this action dries the sheet. An analysis of the exact process may be interesting and helpful in visualizing conditions on various kinds of papers. Let us consider first suction couches with which no pressure or squeeze rolls are used. It will be seen that the total drying effect is the result of two things. First, there is the squeezing action caused by the difference in pressure inside and outside of the roll and second the action of the particles of air from the atmosphere as they expand in passing through the sheet and knock off particles of water. Naturally the relative importance of the two depends on the character of the paper. With glassine and high grade magazine paper, for example the amount of air actually leaking through is small because these sheets are said to be well closed up. Vacuums carried are much higher than would be possible with news or kraft run over the same roll and with the same pump. It would appear that the squeezing or wringing effect were relatively the more important on well closed sheets. On more open sheets it is impossible to build up high vacuums without going to extremely large pumps but the same percentages of dryness are being produced with lower vacuums. It must be the air passing through the sheet that is doing a large part of the drying in this case.

The holes in the suction roll shell contain air at atmospheric pressure except as they pass over the suction box where this air must be expanded. By making the shell of the roll thin the volume of the holes is reduced to a minimum but on higher speed machines, with high vacuums this still represents an appreciable item.

In the case of a suction press the drying action as far as vacuum is concerned is almost entirely the effect of air passing through the felts and sheet. The squeezing action is derived from the press roll and it is only necessary to maintain sufficient vacuum to produce a high air velocity through the sheet. Needless to say, the type and thickness of the felts have an important influence on the required pump capacity.

I have not attempted to deal fully with the rather complex subject of pump applications for suction rolls but hoped that the above brief analysis would be interesting. It will explain in some degree the reasons for carrying higher or lower vacuum on couches and presses according to the kind of paper being made. It shows in general, that the effect of machine speed on pump capacity would be greater where a high vacuum is desired.

St. Regis Reaches Wage Agreement

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., June 13, 1932.—A satisfactory agreement between officials of the St. Regis Paper Company and representatives of the International Brotherhood of Papermakers has been reached and prospects of a strike have vanished. A ten per cent cut in wages was placed in effect in all mills in Northern New York a few weeks ago, but there was some dispute in regard to working conditions. Several hundred employees are affected in the various mills by the reduction which followed a conference held last month here. A dispute over working conditions arose at that time and threatened to interfere with operations, but the trouble has been adjusted.

Cheney Pulp Mill Burned

DAYTON, Ohio, June 13, 1932—Misfortune continues to follow the Cheney Pulp and Paper Company at Franklin, 17 miles south of this city, where six men were killed in an explosion in the rotary department May 12 last.

Friday night, June 10, fire destroyed that section of the building which had been reconstructed, causing a loss of approximately $30,000, partly covered by insurance, and delaying operations.

The plant had just resumed operations following the explosion, although the building had not been completed. This structure was destroyed and the flames spread to the other section of the pulp mill, which also was badly damaged.

Although it has not been definitely determined, it is believed the blaze was caused by spontaneous combustion in the great heaps of rags contained in a store building, used since the blast which wrecked the pulp making department and most of the machinery.

David Patrick, superintendent, who was on the second floor of the building in which the steam plant explosion occurred on the afternoon of May 12, and who was precipitated to the ruins on the first floor, where he was rescued, was standing inside the building under construction when he heard a "puff" at 8:30 P.M. Firman Updike, Contractor of the new building, also was standing nearby. Both glanced up and were amazed to see sparks flying from an electric power transformer on a pole alongside the building. In another few minutes the pulp plant was a mass of flames.

Howard Cheney, proprietor, said the destroyed building was valued at $5,000 and the stock of material at $25,000. Contractor Updike said the water and heat from the fire probably had damaged the concrete which he had poured into the forms recently in the old part of the structure.

New Dry Size Announced

WILMINGTON, Del., June 13, 1932—Production of a new dry wood rosin size, which is expected to mark a definite step forward in paper sizings, is announced by Paper Makers Chemical Corporation, Kalamazoo, Michigan.

While dry rosin sizes have been on the market for some time, the new type, the trade name of which is "Superior Dry Wood Rosin Size," possesses properties which give it the highest sizing efficiency yet achieved, it is stated by P. M. C. authorities.

The new size is the result of several years of research in the corporation's laboratories and has been in trial production for over a year in a semi-commercial pilot plant.

A special modern plant for production of the size has been designed and constructed at Savannah, Ga.

The characteristics of the new product as described in the announcement are as follows:

1. It is a dry, porous, free-flowing powder.
2. It is free from uncombined alkali.
3. It is quickly and completely soluble, even in cold water.
4. It can be added directly to the beaters without fear of rosin spots.
5. The cost of emulsification is eliminated.
6. Transportation costs are lower per unit of sizing value.
7. The disposal of containers is simplified because, being packed in paper bags, the containers can be added to the furnish.
8. Greater sizing efficiency is assured.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JUNE 11, 1932

CIGARETTE PAPER

F. C. Strype, Pr. Hayes, Genoa, 1 cs; American Tobacco Co., Paris, Havre, 262 cs.; Standard Products Corp., Paris, Havre, 107 cs.; Champagne Paper Corp., Sarcoxie, Havre, 128 cs.

WALL PAPER

W. H. S. Lloyd & Co., Samaria, London, 6 bls., 2 cs. Guaranty Trust Co., Milwaukee, Hamburg, 11 cs.; Guaranty Trust Co., A. Ballin, Hamburg, 15 cs.; F. J. Emmerich, A. Ballin, Hamburg, 2 bls.

PAPER HANGINGS

W. H. S. Lloyd & Co., Samaria, London, 6 bls., 2 cs.

PAINTED PAPER

Hudson F'd'g Co., Paris, Havre, 1 cs.

NEWS PRINT

Bank of Montreal, P. T. Dodge, Cornerbrook, 7579 rolls; Jay Madden Corp., Dresden, Bremen, 141 rolls; Perkins, Goodwin & Co., Dresden, Bremen, 66 rolls; Parsons & Whittemore, Inc., Bergensfjord, Oslo, 31 rolls; ——, Bergensfjord, Oslo, 445 rolls, 123 bls.; Parsons & Whittemore, Inc., Veendam, Rotterdam, 212 rolls; Baldwin Paper Co., Milwaukee, Hamburg, 92 rolls; ——, Argosy, Kotka, 400 rolls; Jay Madden Corp., Argosy, Kotka, 697 rolls; Perkins, Goodwin & Co., Amer. Shipper, Hamburg, 350 rolls.

PRINTING PAPER

Borden Riley Paper Co., Dresden, Bremen, 4 cs.; E. Dietzgen & Co., Veendam, Rotterdam, 20 cs.; Standard Products Corp., Paris, Havre, 31 cs.; Japan Paper Co., Berengaria, Southampton, 1 cs.; Rohner Gehrig & Co., A. Ballin, Hamburg, 2 bls.; ——, Amer. Shipper, Hamburg, 69 rolls, 21 bls.

WRAPPING PAPER

Borden Riley Paper Co., Dresden, Bremen, 9 cs.; Standard Products Corp., Minnetonka, Antwerp, 11 cs.; F. C. Strype, Minnetonka, Antwerp, 2 cs.; ——, Pr. Hayes, Genoa, 10 cs.; D. E. Bordner, A. Ballin, Hamburg, 3 bls.

KRAFT PAPER

Jay Madden Corp., A. Ballin, Hamburg, 826 rolls.

FILTER PAPER

H. Reeve Angel & Co., Inc., Samaria, London, 6 cs.

FILTER MASSE

National City Bank, A. Ballin, Hamburg, 20 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., Samaria, London, 2 cs.

TRANSFER PAPER

Weiss F'd'g Co., A. Ballin, Hamburg, 1 cs.

DECALCOMANIA PAPER

L. A. Consmiller, Bremen, Bremen, 2 cs.; C. W. Sellers, Bremen, Bremen, 6 cs.; B. F. Drakenfeld & Co., Adriatic, Liverpool, 8 cs. (Simplex); C. W. Sellers, Milwaukee, Hamburg, 2 cs.; C. W. Sellers, A. Ballin, Hamburg, 13 cs.

COLORED PAPER

S. Gilbert, Dresden, Bremen, 4 cs.; Gerhard & Gey, A. Ballin, Hamburg, 1 cs.

TISSUE PAPER

P. J. Schweitzer, Pr. Hayes, Genoa, 4 cs.; Meadows Wye & Co., Laconia, Liverpool, 1 cs.; W. J. Byrnes, Berengaria, Southampton, 3 cs.

WRITING PAPER

Thomas & Pierson, Berengaria, Southampton, 1 cs.

ENVELOPES

H. Reeve Angel & Co., Inc., Samaria, London, 1 cs.

BARYTA COATED PAPER

Globe Shipping Co., Dresden, Bremen, 20 cs.

METAL COATED PAPER

Globe Shipping Co., Dresden, Bremen, 17 cs.; Taub Hummell & Schnall, A. Ballin, Hamburg, 5 cs.; K. Pauli Co., A. Ballin, Hamburg, 7 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Minnetonka, London, 31 cs.

STENCIL PAPER

Wedeman Godknecht & Lalley, A. Ballin, Hamburg, 14 cs.

CARD BOARD

Hensel Bruckman & Lorbacher, A. Ballin, Hamburg, 4 cs.

PASTE BOARD

——, A. Ballin, Hamburg, 76 cs., 5 bls.

BRISTOL BOARDS

Devoe & Reynolds, A. Merchant, London, 1 cs.

MISCELLANEOUS PAPER

C. L. Voorhees, Pr. Hayes, Genoa, 13 cs.; ——, Pr. Hayes, Genoa, 34 bls.; Keller Dorian Paper Co., Paris, Havre, 4 cs.; American Express Co., Paris, Havre, 5 cs.; D. E. Bordner, A. Ballin, Hamburg, 3 cs.; American Express Co., A. Ballin, Hamburg, 6 cs.; J. Dunn Son & Co., Siamese Prince, Hong Kong, 10 cs.

RAGS, BAGGING, ETC.

Castle & Overton, Inc., Tuscania, Glasgow, 57 bls. rags; E. J. Keller Co., Inc., Lorain, ——, 242 bls. flax waste; Darmstadt Scott & Courtney, Bergensfjord, Oslo, 16 bls. rags; Atlas Waste Co., Chastine Maersk, Kobe, 50 bls. rags; E. J. Keller Co., Inc., Coahoma County, ——, 60 bls, bagging;E. J. Keller Co., Inc., Argosy, ——, 291 bls. rags; E. J. Keller Co., Inc., New York, ——, 67 bls. bagging; Amtorg Trading Corp., Argosy, Leningrad, 335 bls. rags; Banco Coml. Italiane Trust Co., Amer. Shipper, Hamburg, 52 bls. paper stock; ——, Amer. Shipper, Hamburg, 34 bls. rags.

HIDE GLUE

——,Dresden, Bremen, 150 bags; ——,A. Ballin, Hamburg, 100 bags.

BONE GLUE

——,Amer. Shipper, Hamburg, 50 bags.

OLD ROPE

Banco Coml. Italiane Trust Co., Guilia, Trieste, 61 coils.

CASEIN

——, Milwaukee, Hamburg, 60 bags.

WOOD PULP

J. Andersen & Co., Bergensfjord, Oslo, 1417 bls. sulphite; Atterbury Bros., Inc., Bergensfjord, Oslo, 250 bls. mechanical pulp; E. M. Sergeant & Co., Bergensfjord, Oslo, 150 bls. chemical pulp; ——, Bergensfjord, Oslo, 125 bls. chemical pulp; Acer McLernon & Co., Guldborg, Port Alice, 5130 bls. wood pulp; Castle & Overton, Inc., Veendam, Rotterdam, 525 bls. wood pulp; ——, Argosy, Kotka 340 bls. sulphite, 57 tons; ——, Argosy, Kotka, 2200 bls. sulphate, 367 tons; E. J. Keller Co., Inc., Argosy, ——, 336 bls. sulphite; Castle & Overton, Inc., A. Ballin, Hamburg, 560 bls. wood pulp, 112 tons.

WOOD FLOUR

B. L. Soberski, Bergensfjord, Frederickstad, 225 bags; The Burnet Co., Veendam, Rotterdam, 500 bags; State Chemical Co., Veendam, Rotterdam, 400 bags; ——, A. Ballin, Hamburg, 82 bags.

WOOD PULP BOARDS

Lagerloef Trading Co., A. Ballin, Hamburg, 268 bls., 38 tons.

PHILADELPHIA IMPORTS

WEEK ENDING JUNE 11, 1932

American Over-Ocean Corp., Chastine Maersk, Kobe, 25 bls. rags; J. M. Hagy Waste Works, Chastine Maersk, Kobe, 75 bls. rags; National Waste Co., Chastine Maersk, Kobe, 85 bls. rags; Union Waste Co., Chastine Maersk, Kobe, 195 bls. rags; J. Rosenberg, Chastine Maersk, Kobe, 25 bls. rags; J. Andersen & Co., Guilia, Trieste, 270 bls. wood pulp; T. M. Duche & Sons, Coahoma County, Antwerp, 940 bags glue stock; Katzenstein & Keene, Inc., Coahoma County, Antwerp, 156 bls. rags; Castle & Overton, Inc., Argosy, Helsingfors, 196 bls. wood pulp, 39 tons; Lagerloef Trading Co., Argosy, Kotka, 762 bls. mechanical pulp, 152 tons; 1290 bls. sulphite, 247 tons; 1040 bls. sulphate, 208 tons; Lancaster News, Argosy Kotka, 160 rolls news print; ——, Argosy, Kotka, 72 rolls news print; Johaneson Wales & Sparre, Inc., Argosy, Gdynia, 335 bls. sulphite, 50 tons; W. J. Jones Co., Carnia, Genoa, 2 cs. paper; E. J. Keller Co., Inc., Ala, ——, 53 bls. rags.

BOSTON IMPORTS

WEEK ENDING JUNE 11, 1932

G. F. Malcolm Co., Laconia, Liverpool, 19 cs. tissue paper; Andrews Paper Co., Coahoma County, Antwerp, 3 cs. wrapping paper; True & McCelland, Coahoma County, Antwerp, 73 bls. rags.

ALBANY IMPORTS

WEEK ENDING JUNE 11, 1932

Gottesman & Co., Inc., Cubano, Sweden, 5000 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING JUNE 11, 1932

N. Y. Trust Co., Sarcoxie, Dunkirk, 41 bls. bagging.

BALTIMORE IMPORTS

WEEK ENDING JUNE 11, 1932

Congoleum-Nairn Co., Sarcoxie Havre, 332 bls. rags; E. Butterworth & Co., Inc., Sarcoxie, Dunkirk, 241 coils old rope; Gottesman & Co., Inc., Binnendyk, Germany, 150 bls. wood pulp; Gottesman & Co., Inc., Cubano, Sweden, 2900 bls. wood pulp.

Union Bag Resumes Operations

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., June 13, 1932.—Operations were resumed this week by the Union Bag and Paper Corporation with a force of non-union workers brought here from other sections. A number of clashes have already occurred between the union employees and strikebreakers with no prospects of a settlement in sight. Efforts to produce paper are understood to be meeting with difficulty because of the lack of skilled help. Orders are said to be piling up and it was learned that the supply of stock on hand is limited. Several carloads of paper have been delivered here by railroad and it is understood that more is on the way here to be used in the bag producing departments.

It is reported that a building near the main plant has been equipped for the housing of the non-union workers as plans for observing the open shop system continue. The boiler departments at the Allen branch are being operated by strikebreakers, but efforts to obtain skilled papermakers are not meeting with very good results. The unions report that there have been no desertion from their ranks and the strike promises to be of lengthy duration.

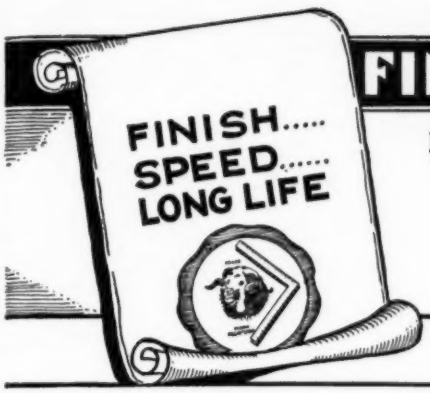
Activities at the barge canal terminal have also stopped for the time being following the unloading of a consignment of foreign pulpwood this week. It was reported that labor trouble in Sweden was responsible for the cessation of operations.

Plattsburg Mill Buys Paper Machine

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., June 13, 1932.—Announcement is made of the sale of one of the several paper machines at the plant of the National Paper Products Company to a Plattsburg concern. The machine has not been operated for the past few weeks. Shipment to the new owners was made early this week.

Both of the large machines at the West End mill, also controlled by the Crown-Zellerbach interests, are in operation with a near normal working force. Schedules at the National Paper Products division have been uncertain for some time although the company is hopeful of recalling all employees in the near future.



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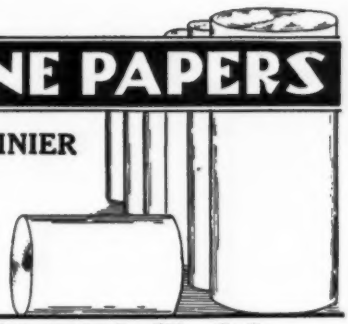
FOR CYLINDER AND FOURDRINIER MACHINES

Let us solve your FELT Problems.



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West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED and MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

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Bleached Spruce Sulphite Pulp, Soda and Kraft Pulp

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"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY
CAMDEN, MAINE

SOLD BY
BULKLEY, DUNTON & COMPANY
75-77 Duane St., N. Y., and direct

MORE REPEAT ORDERS

Another plant of one of the leading manufacturers of straw products is being equipped with a 5′ x 12′ Marcy Open End Rod Mill, the fifth Marcy Mill for this company. Repeat orders mean proof of superior performance, of decreased beating costs and increased profits.

Specific inquiries are invited.

MARCY OPEN-END ROD MILLS

for Perfect Beating of Every Type of Stock

1. Positively reduce power costs.
2. Absolute control under all conditions.
3. Maximum preservation of initial strength.
4. Preserve full fibre length.
5. Positive separation of fibre bundles.
6. Positively no unbeaten stock bypassed.

Send us a sample of your untreated pulp and we will send you proof.

PAPER MILL DIVISION
The MINE and SMELTER SUPPLY COMPANY
Denver, Colorado

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, June 15, 1932.

Trading in the local paper market continues listless. Demand for the various standard grades of paper is only moderately active. Sales forces of the leading paper organizations are still conducting a strenuous campaign for orders. Prices are holding to previously quoted levels, in most instances.

The position of the news print paper market is practically unchanged. Production in the United States and Canada during May amounted to 263,974 tons, while the total North American output amounted to 289,606 tons. Stocks at Canadian and United States mills at the end of May amounted to 92,170 tons, according to information gathered by the News Print Service Bureau.

Demand for the various grades of paper board is restricted. Box board production is being maintained in sufficient volume to take care of current requirements. The trend of the fine paper market is irregular. Tissues are in fairly persistent request. The coarse paper market is steady and kraft wrapping paper prices are holding up well.

Mechanical Pulp

The ground wood market is displaying strength, although the prevailing demand is light. Operations at home and abroad and generally keyed to consumption and, with offerings not unduly excessive, the industry is in a sound statistical position. Prices are holding to schedule and reports of shading are infrequent.

Chemical Pulp

Conditions in the chemical pulp market are fairly satisfactory. While demand for both imported and domestic grades is slow, inquiries for future needs are frequent, some of which should materialize into substantial orders. The Swedish pulp mill workers strike is still unsettled and is an important factor in firming the industry.

Old Rope and Bagging

The old rope market is quiet. Paper mill demand for both domestic and imported old manila rope is rather restricted at present. Small mixed rope continues to move slowly. Old rope quotations are practically unchanged. The bagging market is irregular. While roofing bagging is arousing a litle interest, gunny and scrap are comparitively dull.

Rags

Paper mill interest in the various grades of domestic rags is not very noticeable at present. Demand for cotton cuttings is spotty. The roofing grades are reported slightly more active, although business is below normal for the time of year. Domestic rag quotations are strictly nominal. The imported rag situation continues unsatisfactory.

Waste Paper

The paper stock market is easier. Soft white shavings are now quoted at from 1.30 to 1.40. Overissue magazines are offered at from .65 to .70. No. 1 white news is selling at from 1.15 to 1.25. Board mill demand for the lower grades of paper stock has quieted down and prices are somewhat softer.

Twine

Most of the business transacted in the local twine market during the past week was along routine lines. Demand for the various grades is spotty. Supplies are moving into consumption in moderate volume. No radical price changes have been reported, although competition for desirable orders continues intense.

Parkworth Bond

After a year's intensive preparation, a new bond paper, Parkworth Bond, has been announced by The Parker-Young Company, of Boston, Mass. Strictly a number one Sulphite bond, Parkworth is designed to meet the demand for a high grade bond at a low price.

Both sides of this sheet are alike, no wire mark being visible. This feature, allowing work and turn printing, is particularly important, and is found in no other bond paper in this price range. A new bright white and eight modern, brilliant colors are being stocked at The Parker-Young mill, Lincoln, N. H., in all usual sizes and weights.

Thousands of dollars have been spent in the past year to install the latest automatic control devices at The Parker-Young mill. Absolute uniformity is assured by this equipment.

The strictest limitations have been successfully maintained in the past on these envelope papers and this experience is reflected in the rigid uniformity of Parkworth Bond. Folding qualities, strength, and non-curl, so essential to these envelope papers have been incorporated in the new bond.

A unique advertising program is planned for this new line.

This sample book is now ready and will be sent to any interested party addressing The Parker-Young Company, 148 State street, Boston, Mass.

Cohoes Envelope Co. Busy

[FROM OUR REGULAR CORRESPONDENT]

COHOES, N. Y., June 13, 1932.—Officials of the Cohoes Envelope Company report that business conditions are excellent and orders within the past few weeks have necessitated the introduction of a double shift. The company employs about 75 workers and has not been compelled to reduce its force. The company claims that its sales are running at a normal standard and that overtime schedules will probably be observed indefinitely.

The company reports that conditions during the past several weeks have shown a decided improvement. The concern is continuing to maintain wage scales placed in effect in 1929 and is reluctant to make any reduction. It claims that its loss in trade has been offset by active sales efforts which have permitted the usual level of operating schedules.

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ANY GRADE — ANY QUANTITY

THE CASEIN MFG. COMPANY OF AMERICA, Inc.

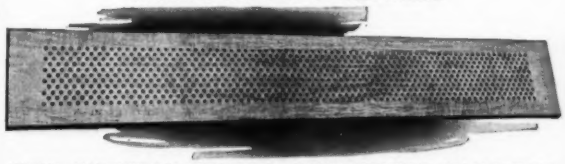
205 E. 42nd St. New York, N. Y.

Oldest and Largest Producers of Casein in America

"M & W"

WOOD SUCTION BOX COVERS

PROLONG THE LIFE OF THE WIRES



ONLY CAREFULLY SELECTED, CLOSE-GRAINED MAPLE USED. DRILLED PERFECTLY SMOOTH. FREE FROM IMPERFECTIONS.

THE MOORE & WHITE COMPANY

Paper Machinery Builders Philadelphia, U. S. A.

Hungerford Water Filters

Inversand Zeolite Water Softeners

(over 200 sizes)

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1932 Catalog and Sample of Zeolite Sent on Request

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CLAYTON, NEW JERSEY

THE CLARK-AIKEN CO.

Successors to
H. C. Clark & Son Machine Co.

PAPER MILL MACHINERY

LEE, MASS.

Revolving Paper Cutters—Rag Cutters—Cylinder Paper Machines—Washing and Beating Engines—Chilled Iron and Paper Calenders—Fan and Stuff Pumps—Engine Roll Bars and Bed Plates—
Cylinder Molds—Marshall Drives—Slitters and Rewinders—Reels—Dryers with Improved Packing Boxes—Wet Machines—Gun Metal and Rubber Rolls—Rolls Reground.

PERMANENT COLORS

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BROWNS
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All types and shades of Oxides of Iron

YELLOWS
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Asbestines and Talcs for Fillers

C. K. WILLIAMS & CO.

EASTON, PA.

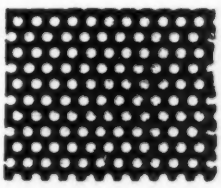
Your Card in This

Space Will Bring

Results

Perforated Metal Screens

For Pulp and Paper Mills



STEEL, COPPER, BRASS, BRONZE, MONEL METAL and other Alloys punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

".065" Round

CHARLES MUNDT & SONS

63-65 FAIRMONT AVE. JERSEY CITY, N. J.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, June 15, 1932.

BLANC FIXE.—The blanc fixe market is practically unchanged. Prices are generally holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Demand for bleaching powder is moderately active. The contract movement is fairly satisfactory. Prices remain unchanged and reports of shading are infrequent. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues quiet. Domestic standard ground is still quoted at 5 cents and finely ground at 7 cents per pound. Argentine standard ground is selling at 8 cents and finely ground at 8½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. Contract shipments are moving in seasonal volume. Solid caustic soda is quoted at from $2.50 to $2.55. The flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is fairly active. Shipments against contract are going forward regularly. Imported china clay is now quoted at from $10 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Most of the business transacted in the chlorine market during the past week was routine. Prices are holding to previously quoted levels. Chlorine is selling at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is slightly firmer. Grades of gum rosin used in the paper mills are quoted at from $3.40 to $3.85 per 280 pounds, in barrels, at works; while wood rosin is selling at $2.80 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Paper mill demand for salt cake is moderately active. Prices remain unchanged. Salt cake is quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works. Imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—Conditions in the soda ash market are fairly satisfactory. Shipments against contract are moving in moderate volume. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.00; in bags, $1.25; and in barrels, $1.38.

STARCH.—The starch market is exhibiting a spotty undertone. Demand is fairly persistent, however, and prices are steady. Special paper making starch is quoted at $2.44 per 100 pounds, in bags; at $2.71 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—No radical changes were reported in the sulphate of alumina market. Prices remain firm. Commercial grades are quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Trading in the talc market is listless. Contract shipments are moving slowly at present. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	38.00
Bonds	5.00	@	53.25
Index	6.00	@	12.00
Writings—			
Extra Superfine	6.50	@	15.00
Superfine	6.25	@	14.75
Tub sized	4.50	@	7.00
Engine sized	4.00	@	5.00
Book, Cased—			
S. & S. C.	5.25	@	—
M. F.	3.75	@	5.00
Coated and Enamel	6.25	@	9.75
Lithograph	6.75	@	11.25
Tissues—Per Ream—			
White No. 1	.65	@	.70
Anti-Tarnish M. G. only	.65	@	.70
Colored	.70	@	.90
White No. 2	.50	@	.60
Kraft	.65	@	.70
Manila	.55	@	.60
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middies	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09¼	@	—
No. 2	.11¼	@	—
Bleached, basis 20 lbs.	.11¼	@	—

(Delivered New York)

News, per ton—			
Roll, contract	53.00	@	—
Rolls, spot	53.00	@	—
Sheets	58.00	@	—
Side Runs	38.00	@	42.00
Kraft—			
No. 1 Domestic	4.75	@	6.00
No. 2 Domestic	3.25	@	4.00
Southern	3.25	@	4.00
Imported	3.50	@	4.30
Boards—per ton—			
News	24.00	@	25.00
Straw	34.50	@	45.00
Chip	24.00	@	25.00
Binders' Boards	62.00	@	70.00
Standard 85 Test Liner	30.00	@	32.50
Sgl. Mla. Lt. Chip	35.00	@	37.50

(F. o. b. Mill)

Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—			
Moist	20.00	@	22.00
Dry	22.00	@	24.00

(F. o. b. Mill)

No. 1 Domestic	18.00	@	24.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	2.10	@	2.90
Easy Bleaching	1.60	@	1.75
No. 1 strong unbleached	1.50	@	1.65
Mitscherlich unbleached	1.60	@	1.75
No. 2 strong unbleached	1.25	@	1.35
No. 1 Kraft	1.50	@	1.65
No. 2 Kraft	1.35	@	1.40
Sulphate—			
Bleached	1.85	@	2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—			
Bleached	2.10	@	3.75
Easy Bleaching	1.75	@	1.90
News	1.50	@	1.65
Mitscherlich	2.40	@	2.55
Kraft (Domestic)	1.50	@	2.75

(Delivered Paper Mills)

Soda Bleached	2.50	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	4.00	@	4.25
New White, No. 2	3.00	@	3.25
Silesias No. 1	3.75	@	4.00
New Unbleached	5.50	@	6.00
New Soft Blacks	2.75	@	3.00
Blue Overall	3.00	@	3.50
Fancy	1.50	@	1.75
Washables	1.15	@	1.40
Mixed Khaki Cuttings	2.50	@	3.00
Pink Corset Cuttings	2.75	@	3.25
O. D. Khaki Cuttings	3.00	@	3.25
Men's Corduroy	1.00	@	1.25
New Mixed Blacks	2.25	@	2.50

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White, No. 2—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.00	@	1.25
Black Stockings	2.00	@	2.25
Roofing Rags—			
No. 1	.53	@	.58
No. 2	.48	@	.53
No. 3	.43	@	.48
No. 4	.38	@	.43
No. 5A	.33	@	.38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@	1.50
New Mixed Cuttings	1.60	@	1.75
New Light Silesias	3.40	@	3.50
Light Flannelettes	3.25	@	3.50
Unbleached Cuttings	5.50	@	6.00
New White Cuttings	4.75	@	5.00
New Light Oxfords	4.00	@	4.25
New Light Prints	2.00	@	2.25

Old Rags

No. 1 White Linens	5.25	@	5.50
No. 2 White Linens	4.50	@	4.75
No. 3 White Linens	3.25	@	3.75
No. 4 White Linens	1.75	@	2.25
No. 1 White Cotton	4.00	@	4.25
No. 2 White Cotton	3.00	@	3.25
No. 3 White Cotton	2.25	@	2.50
No. 4 White Cotton	1.40	@	1.50
Extra Light Prints	1.90	@	2.10
Ord. Light Prints	1.60	@	1.75
Med. Light Prints	1.40	@	1.55
Dutch Blue Cottons	1.35	@	1.40
French Blue Linens	1.80	@	1.90
German Blue Linens	1.70	@	1.80
German Blue Cottons	1.20	@	1.25
Checks and Blues	1.25	@	1.30
Lindsay Garments	.75	@	.80
Dark Cottons	.70	@	.75
Old Shopperies	.55	@	.60
New Shopperies	.60	@	.65
French Blues	1.25	@	1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.00	@	1.10
Domestic	1.15	@	1.25
Wool Tares, light	.80	@	.85
Wool Tares, heavy	.80	@	.85
Bright Bagging	.75	@	.80
Small Mixed Rope	.80	@	.90
Manila Rope—			
Foreign	1.50	@	1.60
Domestic	1.50	@	1.75
New Burlap Cut	1.65	@	1.75
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
Hard, white, No. 1	2.00	@	2.15
Hard, white, No. 2	1.40	@	1.50
Soft, white, No. 1	1.30	@	1.40
White envelope cuttings	1.60	@	1.70
Flat Stock—			
Stitchless	.65	@	.70
Overissue Mag.	.65	@	.70
Solid Flat Book	.55	@	.60
Crumpled No. 1	.40	@	.45
Solid Book Ledger	1.50	@	1.75
Ledger Stock	.60	@	.70
New B. B. Chips	.20	@	.30
Manilas—			
New Env. Cut	1.30	@	1.40
New Cuttings	1.05	@	1.15
Extra No. 1 old	.90	@	1.00
Print	.40	@	.45
Bogus Wrapper	.40	@	.45
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	.70	@	.80
News—			
No. 1 White News	1.15	@	1.25
Strictly Overissue	.35	@	.45
Strictly Folded	.25	@	.30
No. 1 Mixed Paper	.15	@	.20

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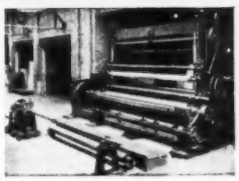

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Twines

(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finished Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.09¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine			
Balls	.08¾	@	.10¼
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¾	@	.03¾
No. 1 Kraft	4.50	@	5.00
Southern Kraft	3.25	@	—
No. 2 Kraft	3.25	@	—
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½

(Delivered Central Territory)

News, per ton—			
Rolls, contract	53.00	@	—
Sheets	58.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.75	@	1.80
No. 1 Hard White	1.55	@	1.60
No. 1 Soft White	1.40	@	1.45
Ledger & Writings	.55	@	.65
Solid Books	.50	@	.55
Blanks	1.15	@	1.20
Krafts	.95	@	1.00
New Kraft Cuts	1.40	@	1.50
Manila Env. Cuts	1.40	@	1.50
Ex. No. 1 Manila	1.00	@	1.10
Print Manila	.35	@	.40
Overissue News	.45	@	.55
Old Newspapers—			
No. 1	.45	@	.50
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.25	@	.30
No. 2	.15	@	.20
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¼	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04

(Delivered Philadelphia)

News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	30.00	@	32.00
Chip Board	25.00	@	27.50
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	63.00	@	65.00
Carload lots	62.00	@	67.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.05	@	.05½
New Whitie, No. 2	.04	@	.04¼
Light Silesias	.04	@	.04½
Silesias, No. 1	.04	@	.04½
Black Silesias, soft	.04	@	—
New Unbleached	.05½	@	.06
Washable, No. 1	.02	@	.02½
Blue Overall	.04	@	.04½
Cottons—According to grades—			
Washable, No. 2	.01½	@	.02
New Blue	.01¾	@	.02
Fancy	.02	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01¾	@	.02
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O.D.	.04½	@	.05
No. 2 Mixed	.03½	@	.04
Corduroy	.02½	@	.03
New Canvas	.06½	@	.07
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.50
M. G.	3.50	@	4.00
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1	1.00	@	1.10
Repacked	.70	@	.80

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.90	@	2.00
No. 2 Hard White	1.75	@	1.80
No. 1 Soft White	1.60	@	1.70
No. 2 Soft White	1.40	@	1.50
No. 1 Mixed	.45	@	.55
No. 2 Mixed	.40	@	.50
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.80	@	.90
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.25	@	1.50
No. 1 Old Manila	1.00	@	1.25
Print Manila	.40	@	—
Container Manila	.40	@	.45
Old Kraft	.90	@	1.00
Common Paper	.15	@	.20
No. 1 Mixed Paper	.20	@	.25
Straw Board, Chip	.25	@	.35
Binders Board, Chip	.25	@	.35
Corrugated Board	.30	@	.35
Overissue News	.40	@	.45
Old Newspaper	.20	@	.25

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	.03¾	@	.03¾

(F. o. b. Boston)

Southern Kraft	.03¾	@	.03½

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¾

(Delivered New England points)

News Print, rolls	—	@	52.50
Straw Board, rolls	.009	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	25.00	@	30.00
Chip Board	—	@	25.00
Chip Board (Creasing)	25.00	@	27.50
Single Manila Lined Chip	—	@	35.00
Single White, Patent Coated News Board—Bender	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Soft White	—	@	1.35
No. 1 Old Manila	.65	@	.75
No. 1 Mixed Paper	—	@	.15
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.30	@	1.50
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.90	@	1.10
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	—	@	.45
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.80	@	.90
White Blank News	1.20	@	1.30
Kraft No. 1	.70	@	.80
Manila	.80	@	.90
No. 1 Mixed Papers	.13½	@	.17½
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.22½	@	—
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.17½	@	.22½
Screening Wrappers	.25	@	.32½

Bagging

(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.75	@	.80
Manila Rope—			
Foreign	1.50	@	1.60
Domestic	1.55	@	1.75
Transmission Rope	1.00	@	—
Mixed String	—	@	.32½
Jute Rope	—	@	.85
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	—	@	.60
No. 1 Scrap Burlap	.80	@	.90
Scrap Sisal	.75	@	1.00
Scrap Sisal for shredding	.90	@	1.00
Wool Tares, heavy	.60	@	.65
New Burlap Cutting	1.00	@	—
Australian Wool Pouches	—	@	1.50
Heavy Baling Bagging	1.00	@	1.25
Paper Mill Bagging	.60	@	.70
Bagging No. 2	.30	@	.35
No. 1 Burlap	2.75	@	3.00

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1	.04½	@	.04¾
New White No. 2	.03	@	.03¾
Silesias No. 1	—	@	.03
New Black Silesias	.02½	@	.04
New Unbleached	.04½	@	.05¼
Fancy	—	@	.02½
Washable	—	@	.01¾
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¼	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	1.00	@	1.12½
Thirds and Blues—			
Repacked	—	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.35	@	.40
No. 2	.30	@	.35
No. 3	.25	@	.30

Foreign Rags

(F. o. b. Boston)

Dark Cottons	.40	@	.50
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.60	@	1.80
New Checks & Blues	4.00	@	4.50
Old Fustians	—	@	1.00
Old Linsey Garments	.55	@	.65

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	3.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	52.50	@	53.00
Sheets	57.50	@	—

Pulp

(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	45.00	@	—
Sulphite, news grade	40.00	@	—
Sulphite, bleached	58.00	@	65.00
Sulphate	55.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.50	@	—
Soft White	2.25	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	.65	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¾

★ ★ PAPER BLACKS

THAT DISPERSE WELL

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